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ANNUAL REPORTS

OF THE

EXPERT OFFICERS OF THE DEPARTMENT OF AGRICULTURE, BENGAL,

FOR THE YEAR ENDING

30TH JUNE 1915.

CALCUTTA:

THE BENGAL SECRETARIAT BOOK DEPOT.

1915.

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ANNUAL REPORT OF THE 1st DEPUTY DIRECTOR OF AGRICULTURE, BENGAL, FOR THE YEAR ENDING 30th JUNE 1915.

I WAS in sole charge of the office until the middle of February 1915 when Kenneth McLean, Esq., the 2nd Deputy Director, came to Bengal and took over charge of the Dacca, Rajshahi and Chittagong Divisions. This relieved me of all farms except Kalimpong and other work in those divisions.

I was on duty throughout the year and with the exception of the month of December which I spent in visiting the farms of the Madras Presidency, my time was chiefly occupied in inspecting the various farms in the Province, in organising our exhibits at agricultural *melas*, in visiting demonstration work of the Department and Ufra work in Comilla and in managing the seedstore at Sibpur.

I was on tour during the year 204 days. Of this period, more than 50 per cent. was spent on the farms, while the remainder was spent in touring in every division and most districts of the Province. As will be seen below results were much affected at Chinsurah, during the period under review, owing to the abnormal weather conditions which prevailed. The rain flooded out the jute crop in May and June while drought from September onwards caused partial failure of the rice crop. At Burdwan, excellent work was done with thick cane. Over 100 maunds of *gur* per acre were obtained from White Tanna Sugarcane and a large number of cuttings were distributed to cultivators. At Kalimpong again an average outturn of nearly 30 maunds of maize grain per acre over 20 acres were obtained, and it is interesting to note that local cultivators are now beginning to follow our practice of applying heavy farm yard manure dressings. This year a little more of our selected seed was distributed to *bonâ fide* cultivators than last year, but the quantity was still too small to be able to say that local cultivators appreciated our efforts in this respect.

Many agricultural exhibitions were abandoned on account of the war. Some very useful *melas* were held, however, such as at Suri and Banjetia where cultivators came in by the thousand to compete with one another and to see the exhibits.

Others would be more successful if a few more energetic members were enrolled on the Committee and everything subordinated, for one or two days, to holding a *mela*.

Owing to fewer *melas* and more sets of Divisional Exhibits, our Department was better represented than in previous years and as Superintendents of Agriculture obtain more experience, the Department will become more active and better known throughout the districts.

Demonstration work is making some headway and when the two new Superintendents of Agriculture of the Presidency and Burdwan Divisions know their charges better and are able to keep continually month by month in contact with the work of each active member, we shall begin to obtain some very useful data.

We cannot possibly hope to keep continually in touch with active members until an agricultural officer is appointed to every district, and if reliable data are to be obtained it will only be by doing the work ourselves under constant superior supervision. There are several active members in every district who are willing to carry out something recommended by our Department, but they require to be shown what to do. It is not sufficient to pay one flying visit in a season to each member to give instructions. This is all that could be attempted in the past with the small staff at our command. The result has been unsatisfactory. We must continually control the demonstration from its very commencement to a successful conclusion if we ever wish to get at the great mass of cultivators.

A full programme was arranged and carried out for investigating the Ufra disease of paddy at Comilla; but owing to the scanty rainfall and lowness of the rivers very little Ufra was noted in 1914, so further investigation will have to be made.

The Sibpur seedstore continued to be the chief supply for seeds, manures and implements for the whole Province during the larger part of the year, but towards the end of the year each division was provided with a seedstore and the Sibpur seedstore has, therefore, been abolished. For the Burdwan Division it was found more convenient to have a seedstore near the Howrah station. Each seedstore is in charge of the respective Divisional Superintendent of Agriculture.

Agricultural Stations :—

1. *Chinsurah.*
2. *Kalimpong.*
3. *Burdwan.*

1. Chinsurah Agricultural Station.

There are few useful data to record as the result of the past year's work on this station. The Superintendent was new to this place in the previous year, so his want of experience of local conditions found him quite unprepared for heavy downfalls of rain in May which, followed by a very wet June, flooded out the jute crop. These heavy early rains also flooded out most of his paddy seed beds which delayed transplanting on the larger area of the farm until late in August with the result that as a drought set in from August onwards most of the paddy crop partially failed. Small areas were transplanted in July and yielded outturns of 25 to 27 maunds per acre on acre blocks, but the average outturn for 102 acres was only 10 maunds per acre which compares very unfavourably with 27 maunds per acre from 91 acres in the previous year. The delay of transplanting was fatal and always will be fatal. I find, apart from irrigation, nothing can compensate for delay in the transplanting of paddy later than July in the Burdwan Division. Other things being equal, the outturn is always less the later the paddy is transplanted after the middle of July. Superintendent's figures show, that after deducing a total failure of 13½ acres, jute worked out at 6¼ maunds of fibre per acre and less than 1 maund of seed per acre. These results are bad. Neither jute nor paddy paid for themselves in 1914 on this farm.

All other crops are subsidiary to the above two and, with the exception of gram and potatoes, gave very poor results.

Generally speaking, except for a very limited period on this farm, when the river Hooghly is in flood and when farm crops require as much flood water as they can get, drainage is a simple matter, but irrigation is a more complicated undertaking especially on a large area. Having found out that for want of one or two judicious irrigations we have had to put up with partial failures of both the jute and paddy crops, we decided to try an oil engine and pump for irrigation purposes. To this end we took over an old machine lying in the Department and installed it near one of the tanks on the Chinsurah farm. Results up to date show that it will not do to allow any of the present farm staff to touch the engine and pump, and that we must have a trained mechanic in charge. There is not the slightest doubt that in adverse years if we can give one or two timely irrigations we can guarantee bumper crops of paddy and jute. It remains to be proved whether the expense of an oil engine and pump for giving one or two irrigations in abnormal years will be repaid by the extra yield obtained. There are other points also to be remembered, viz., the certainty of a return and the ability to grow garden crops, such as vegetables all through the winter months after the jute and paddy crops have been harvested. This branch of work—irrigation—tends to be the most useful and interesting item of investigation in the Burdwan Division.

The financial results for this farm during the year 1914-15 compare very unfavourably with those of previous years :—

April—March 1914-15.

Receipt.	Rs.	A.	P.	Expenditure.	Rs.	A.	P.
Sale-proceeds ...	1,158	14	0	Farm expenditure	9,888	1	4
Stock in hand on 1st April 1915 (since sold).	3,020	8	9	Supervision ...	3,686	14	9
				Apprentices ...	596	8	0
				Capital expenditure	388	0	0
Total ...	4,179	6	9	Total ...	14,559	8	1

This compared with receipts of Rs. 9,293-1-1 and expenditure of Rs. 10,465-8 in the previous year.

Ordinary farm expenditure has gone up over Rs. 2,300, while supervision has also increased by over Rs. 1,000.

Babu Chuni Lal Mustafi asks me to publish verbatim his report of the working of the year and I do so to record the year's working.

F. SMITH,

Deputy Director of Agricluture, Bengal.

ANNUAL REPORT OF THE FARM SUPERINTENDENT OF THE CHINSURAH AGRICULTURAL STATION FOR THE YEAR ENDING 30TH JUNE 1915.

1. *Introduction.*—This farm of 210 acres, the soil of which is typical of the Hooghly District of the Burdwan Division, is well suited to jute and winter paddy in years of normal rainfall. In addition to experiments on these two crops, a large area has now been allotted for demonstration of methods already declared to be superior and for production of pure seeds of jute and paddy varieties, also sugarcane cuttings, for distribution in the Division and the Province. Pure-line cultures of jute and paddy varieties have also recently been taken up under the guidance of the Fibre Expert and the Economic Botanist, Bengal, and it is hoped that the farm will be in a position before long to develop and supply seeds, whose superiority over all local seeds of the respective races will be guaranteed.

The water-storage and drainage scheme of the farm requires serious attention as experience shows that jute and paddy seed-bed areas cannot be drained if there are abnormal rains in May and June, as are occurring in recent years, and that the storage under existing conditions is too scanty to allow of anything like irrigation to paddy, not to speak of rabi crops, potato or sugarcane that come on later in the year. The very important sugarcane experiment—system of growing, Java v. Country—started towards the close of the year suffered very badly for absolute want of water, and the crop had to be left to its fate. A ring well was hurriedly sunk on the centre of the farm to provide drinking water for men and cattle while out at work there. A scheme for combined water-storage and drainage will shortly be submitted for consideration and necessary action.

The year under report was altogether unfavourable to agricultural operations on the farm under existing irrigation and drainage conditions. There had been no rainfall at all in March 1914, and this very badly affected the preparation of land. Ploughing operations started late in April, and so the sowing of jute and paddy seed-beds were bound to be late, resulting in the complete destruction thereof through abnormal rains in May of 12·38 inches against normal 5·85 inches. Thus the jute crop was doomed in May, and the secondary paddy against seed-beds sown in June had to fight through 19·5 inches of rains in July against normal 11·28 inches. The paddy seedlings that survived were very weak and late and transplanting started slowly in the third week of July. The rainfall throughout August—October was considerably deficient—18·48 inches against normal 24·13 inches—and the result was the stunting up of the paddy crop altogether.

2. *Situation and brief history.*—The farm is situated to the west of the East Indian Railway line between the Chinsurah and Hooghly stations. It is 38 inches above sea-level. The station was opened in 1908 and is representative of the Hoogly District.

3. *Irrigation.*—The farm has to depend almost entirely on rainfall. The tanks, *jhils* and channels have all silted up injuriously and no storage can now be secured for October—May irrigations. It is only the want of water on the area that keeps back cultivation in due season, and irrigation of a crop when needed. This question is the essential factor in the success of all agricultural institutions A definite scheme, with approximate cost, will shortly be submitted.

No experiment with water lifts could be conducted during the year, for want of water on the farm. The oil-engine pump set up in November 1914 did not work successfully, always tending to get out of order.

4. *Area.*—The area is 210 acres, of which about 180 acres are under actual cultivation, the remainder being occupied by the steading, roads, channels, tanks and *jhils*.

5. *Soil.*—The soil is mostly a clay loam and is representative of the Gangetic alluvium on the west side of the Hooghly. The soil is fertile and capable of growing good crops.

6. *Meteorology.*—The rainfall was nearly 10·5 inches above normal, being about 15 inches in excess in May and July. This was fatal to jute and paddy seed-beds. The deficiency of 6·31 inches in August—November badly told on the paddy crop transplanted late through the first sown seed-beds being destroyed by the early excess rains. The following table shows the average

normal rainfall at Sadar, 3 miles off, with the actual rainfall and number of rainy days recorded on the farm during the year under report :—

Month.	Average normal rainfall at Sadar.	Actuals on the Farm—		Excess or deficiency.	
		Rainfall.	Number of rainy days.	Plus.	Minus.
1914.	Inches.	Inches.			Inches.
April ...	2·46	3·43	7	·97	...
May ...	5·85	12·38	9	6·53	...
June ...	10·56	7·62	9	...	2·94
July ...	11·28	19·50	24	8·22	...
August ...	11·64	9·87	17	...	1·77
September ...	8·40	7·59	13	...	·81
October ...	4·09	1·02	1	...	3·07
November ...	·66	*Nil*	*Nil*	...	·66
December ...	·19	1·90	2	1·71	...
1915.					
January ...	·38	·26	2	...	·12
February ...	1·20	·34	1	...	·86
March ...	1·58	4·73	10	3·15	...
Total ...	58·29	68·64	95	20·58	10·23

7. *Temperature.*—The table below shows the average monthly maximum and minimum temperatures in Fahrenheit, in the open and in the shade on this farm for the year—

Month.	Inside maximum.	Average minimum.	Outside maximum.	Average minimum.	Godown maximum.	Average minimum.
1914.						
April ...	89	78	98	74	112	74
May ...	88	80	96	79	109	78
June ...	89	81	99	81	107	79
July ...	87	80	92	81	100	80
August ...	88	81	93	81	96	79
September ...	87	80	95	80	98	71
October ...	86	76	98	75	100	65
November ...	89	69	101	65	94	53
December ...	73	62	84	60	89	50
1915.						
January ...	74	73	81	58	84	49
February ...	79	68	88	62	91	51
March ...	85	74	92	69	96	60

8. *Operations during the year.*—The total area under cultivation during the year was 152·56 acres, of which 83 acres were under experiment and 69·56 acres were under ordinary cultivation. The unusual and peculiar weather conditions in the year told heavily on the crops of jute and winter paddy lowering the outturns very miserably.

(a).—General crops grown.—The table below shows the area, actual out turn and yield per acre of crops grown in 1914-15—

Name of crop.	Area in acres.	Actual outturn.	Yield per acre.	Remarks.
		Md. srs.	Md. srs.	
Aman paddy	101·85	1,014 7	10 0	The wholesale destruction of first sown seed-beds caused by the early abnormal rains led to late transplanting resulting in a six-anna crop through deficiency of rainfall from August to November.
Jute ...	40·81 (of which 13·41 failed altogether)	Fibre 121 30 Seed 25 6	6 10	Want of February—March rains kept back the breaking up of the land; sowing was late and the young plants waterlogged by the abnormal rains of July.
Dhaincha ...	1·6	...	...	Green manured to aman paddy.
Sunnhemp ...	1	Seed 1 28 Fibre 0 24	1 28 0 24	Destroyed through heavy rains.
Sugarcane ...	·2	*Gur* 0 29 4 Cuttings 3,600 0	Rs. a. p. 134 8 6	Too much of blanks through indented cuttings drying up in transit, lowered the outturn heavily.
			Md.srs.ch.	
Potato ...	·5	46 10	92 20 0	Bad germination, 60 per-cent. Wild pigs also ravaged the crop.
Khensari ...	3·2	5 0	1 22 8	The absence of late rains affected germination and growth as the fields were cracked dry.
Lentils ...	·95	0 15	0 15 12	Want of moisture since sowing time, led to failure.
Mustard ...	·7	1 23	2 10 0	Want of moisture since sowing time, badly affected the crop.
Gram ...	·5	5 26	11 12 0	Soil very suitable; germination was very low through want of moisture, or the outturn would have been better still.
Pea ...	1·25	2 35	2 12 0	Absence of moistures since sowing led to failure.

The following table shows the respective outturns of different varieties of winter rice under the same unfavourable conditions each had to pass through during the year :—

Paddy variety.	Area in acres.	Average outturn of grain per acre.
Nagra	45·41	13¾ maunds.
Dadkhani	12·20	2⅞
Banktulsi	15·84	2¼ maunds.
Badshabhog	13·55	10⅞
Samundrabali ...	3·10	12⅞
Hatishal	1	14½
Kataribhog	3·36	7⅜
Indursail	·68	14⅙
Jatakalma and Kartickshal*	2·96	15½
Lauphala†	3·75	10⅙

The statement below shows the highest outturns in the year obtained with Nagra on acre plots, unfavourable though the conditions had been all throughout its growing period.

Plot number.	Outturn of grain per acre.
	Md. s.
B ⅓	26 10
B $\frac{1}{6}$	24 30
B ⅝	25 20
B - $\frac{2}{6}$	27 0

So, the superiority of Nagra—the local variety of aman paddy—as the stuff for ordinary cultivation is well proved, and it remains with us now to attain a further improvement of this particular race by a pure line culture of the seed secured from selected single plants. Work on this line is being started in 1915-16.

The following table records the respective outturns of different varieties of jute under the same adverse conditions :—

Variety.		Area in acres.	Average outturn per acre in maunds.
			Md. s.
Olitorius, Hooghly	Seed ...	3·90	0 35
	Desi fibre ...	11·65	3 25
Tosha	Seed ...	1·00	1 10
	Fibre ...	1·05	11 25
Capsularis Kakya, Bombai No. 7.	Seed ...	2·00	5 10
	Fibre ...	1·55	8 30
Deswal	Seed ...	1·05	3 0
	Fibre ...	·05	9 0
Dhaleswar ...	Seed ...	1·05	2 10
	Fibre ...	·05	11 0
Barapat ...	Seed ...	·05	5 0

B.—Experimental works on jute and aman paddy :—

(1) Jute—

(*i*) Based on figures obtained from ⅕ acre each in duplicate.

Manure per acre.	Total cost of cultivation per acre.	Outturn of fibre per acre.
	Rs. A. P.	Md. s. c.
Nil	69 9 6	4 17 8
Cowdung, 100 maunds ...	85 13 0	8 27 8
Castor cake, 10 maunds ...	97 3 6	13 25 0
Cowdung, 50 maunds ...		
Super, 3 maunds	109 11 0	8 5 0
Saltpetre, 1 maund ...		

(*ii*) One maund of sodium nitrate was applied to an acre of jute. The total cost of cultivation was Rs. 76, and the outturn of fibre $6\frac{1}{16}$ maunds. The experiment will be repeated next year and compared with a standard.

* Early high-land paddy—a good variety.
† Coarse low-land paddy.

(3) Varietal—on high-land—based on figures obtained from $\frac{1}{20}$ acre each being destroyed through water-logging. The outturns of fibre obtained per acre are noted as follows :—

	Mds. s.
Red Deshi Jute	21 10
„ Tosha	13 30
Kakya Bombai No. 7	26 20
„ Deswal	9 0
„ Dhaleswar	11 0

2. Aman paddy.

(*a*) Manurial.—The following table gives the manures applied with cost thereof and outturns of grain and straw obtained per acre under the same unfavourable conditions :—

Manure per acre.	Cost of manuring.	Outturn per acre.	
		Grain.	Straw.
	Rs. a. p.	Mds.	Mds.
1. Nil	...	$14\frac{1}{3}$	$25\frac{1}{2}$
2. Cowdung, 100 maunds	11 8 0	$16\frac{3}{4}$	$28\frac{1}{2}$
3. Cowdung, 100 „	20 14 0	$20\frac{7}{8}$	41
Bonemeal, 3 „			
4. Cowdung, 100 „	21 1 10	46	...
Ammon. sulph., 1 maund			
5. Cowdung, 100 maunds	32 3 0	$20\frac{1}{3}$	$29\frac{1}{4}$
Bonemeal, 3 „			
Ammon. Sulph., 1 maund			
6. Bonemeal, 3 maunds	24 15 0	$17\frac{1}{3}$	30
Ammonia sulphate 1 maund ...			
7. Bonemeal, 3 maunds	15 13 0	$16\frac{1}{2}$	$22\frac{3}{4}$
8. *Dhaincha, sown at 6 seers and green-manured.	9 6 0	$18\frac{1}{4}$	$33\frac{3}{4}$
9. Nitrolim, 1 maund	54 0 0	$16\frac{1}{3}$	$39\frac{1}{2}$
Super, 3 maunds			

* The dhaincha crop grew only 1′ high through heavy rains.

The superiority of dhaincha as green-manure to aman paddy is well established. The time of transplating, and favourable conditions for pollination are the two leading factors in rice cultivation. In other words, the following are the controlling conditions of a paddy crop, irrespective of the question of manuring :—

(1) Healthy seedlings raised early in the season.
(2) July transplanting with normal rainfall.
(3) Sufficient late rains in September—October at flowering and pollination periods.

The application of manures will certainly increase the yield and green-manuring with dhaincha or sunnhemp is the most economical manure generally recommended.

The table below shows the results of another series of manurial experiment:—

Manure per acre.	Cost of manuring.	Outturn per acre.	
		Grain.	Straw.
	Rs. A. P.	Mds.	K. P. G.
Nil	...	$17\frac{4}{5}$	3 11 0
Sodium nitrate, 1 maund ...	6 8 3	21	2 14 9
Calcium ditto ...	5 10 9	$22\frac{5}{8}$	2 13 14

The experiment will be repeated next year to obtain decisive results.

(*b*) Varietal.—The table below shows the average outturn per acre of 8 different varieties of winter paddy, the first 5 of which were being tried for 6 successive years.

Serial number.	Name of variety.	Average outturn per acre in maunds.											
		1909-10. Favourable rainfall.		1910-11. Transplanting very late.		1911-12. Scanty late rains.		1912-13. Favourable rainfall.		1913-14. Favourable rains, except at the late stage.		1914-15. Transplanting late and late rains deficient.	
		Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.
1	Daukhani ...	$19\frac{3}{4}$	24	$9\frac{5}{8}$	$16\frac{1}{4}$	$17\frac{1}{8}$	$26\frac{3}{4}$	$18\frac{1}{2}$	$23\frac{1}{8}$	$26\frac{1}{4}$	30	$7\frac{1}{8}$	$31\frac{1}{8}$
2	Badshabhog ...	$20\frac{1}{4}$	35	$12\frac{1}{8}$	$17\frac{5}{8}$	$20\frac{3}{8}$	37	$16\frac{3}{4}$	$26\frac{3}{8}$	$28\frac{1}{4}$	$47\frac{3}{8}$	11	$31\frac{5}{8}$
3	Banktulsi ...	$18\frac{5}{8}$	$29\frac{1}{2}$	$9\frac{1}{4}$	$15\frac{5}{8}$	$18\frac{3}{4}$	$31\frac{1}{4}$	$21\frac{3}{8}$	$31\frac{1}{2}$	$25\frac{3}{4}$	$43\frac{3}{8}$	$5\frac{1}{8}$	$35\frac{1}{16}$
4	Hatishal ...	19	$26\frac{3}{4}$	$10\frac{3}{4}$	$16\frac{1}{4}$	$12\frac{1}{4}$	36	22	$36\frac{3}{8}$	$23\frac{1}{2}$	$39\frac{1}{4}$	$14\frac{1}{2}$	$33\frac{1}{2}$
5	Nagra ...	$20\frac{1}{8}$	$22\frac{1}{8}$	9	$16\frac{1}{2}$	$19\frac{1}{4}$	$29\frac{1}{2}$	$21\frac{1}{2}$	$34\frac{3}{4}$	$31\frac{1}{4}$	$34\frac{1}{8}$	$11\frac{1}{2}$	$42\frac{3}{8}$
6	Indursail ...	...	...	...	...	...	...	...	...	...	...	$13\frac{1}{4}$	$37\frac{1}{16}$
7	Kataribhog ...	...	...	...	...	...	...	...	...	...	...	$8\frac{3}{4}$	31
8	Samudrabali ...	...	...	...	...	...	...	...	...	...	...	$11\frac{5}{8}$	$14\frac{5}{8}$

The unfavourable conditions during the year, however detrimental to attaining good crop results, have served an immense good in pointing out the particular paddy varieties that can withstand late transplanting as well as subsequent scanty rainfall.

Nagra, however prolific otherwise, seems to suffer under adverse conditions more than a few other varieties.

Banktulsi suffers worst.

Badshabhog and Samundrabali, two fine, scented and better-priced varieties, seem to bear the deficiency of late rains very fairly.

Hatishal has given good results in most of these years and seems to stand unfavourable conditions fully.

Indursail from selected seed of the Economic Botanist, seems to be a prolific variety and to stand rough conditions well.

(*c*).—*Methods of cultivation*—

1. Time of ploughing. To find out the difference in results from ploughing the land at the earliest opportunity after the last harvest and the same done in April—May. The results, as shewn below, appear to be in favour of the latter method. The experiment, however, will be repeated next year to obtain more decisive results.

Time of ploughing.	Total cost of cultivation per acre.	Outturn of grain per acre.
	Rs. A.	Mds. S. C.
Ploughing immediately after harvest	25 3	10 4 0
Ploughing in April—May ...	24 3	10 30 0

2. Kind of plough.—To compare the yields from the use of local and Hindustan ploughs for paddy cultivation. The figures seem to be in favour of the Hindustan plough. The experiment will be repeated.

Kind of plough.	Total cost of cultivation per acre.	Outturn of grain per acre.
	Rs. A. P.	Mds. S. C.
Local	26 12 6	7 5 0
Hindustan	27 6 3	7 26 10

3. Seedlings.—To test the difference in the use of varying numbers of seedlings per hole for transplanting at different periods. The figures are embodied in the table below.

Date of transplanting.	Number of seedlings used per hole.	Total cost per acre.	Outturn per acre in maunds.	
			Grain.	Straw.
		Rs. A.		
15th July ...	2	52 0	$12\frac{3}{8}$	$37\frac{3}{4}$
Ditto ...	4	57 3	14	$37\frac{1}{2}$
15th August ...	2	57 3	$10\frac{2}{3}$	51
Ditto ...	4	59 11	$9\frac{3}{4}$	$52\frac{3}{4}$

The deficient rainfall during August—October (4·65″ below normal) lowered the outturns badly, as in the cases of all crops during the year, but it is quite clear that two seedlings transplanted by the middle of July is always economic and best paying.

4. Spacing.—This was a compound experiment to find out economic spacing and number of seedlings to be transplanted per hole according to the time of transplantation. The results may be seen below.

Distance apart transplanted.	Number of seedlings used per hole.	Date of transplanting.	Total cost per acre.	Outturn per acre.	
				Grain.	Straw.
			Rs. A. P.	Mds. S.	K. P. G.
8 inches ...	2	15th July ..	35 2 6	24 20	3 1 0
12 „ ...	2	Ditto ...	38 6 0	26 20	3 0 0
8 „ ...	4	Ditto ...	36 6 3	26 10	3 1 5
12 „ ...	4	Ditto ...	36 14 6	26 12	3 1 16
8 „ ...	2	15th August ...	36 1 0	9 0	1 14 10
12 „ ...	2	Ditto ...	36 0 6	10 36	2 4 0
8 „ ...	4	Ditto ...	38 0 3	10 0	2 4 10
12 „ ...	4	Ditto ...	38 0 3	9 25	1 12 12

In the year under report with the rainfall from August—October 4·65″ below normal, 4 seedlings transplated 8″ apart on 15th July has given the best results. But it must always be borne in mind that all these details entirely depend on weather conditions, which are the controlling power by which the spacing and number of seedlings are to be fixed according to date of transplanting. The excess or deficiency of late rains will, however, play an important part in the final fate of the crop.

(d).—Conservation of cattle shed refuse.—The following table gives the results from the use of properly conserved cowdung as compared with that of raiyats' cowdung :—

Kind of cowdung.	Total cost per acre.	Outturn per acre.	
		Grain.	Total value.
	Rs. A. P.	Mds. S.	Rs. A. P.
Farm cowdung ...	34 2 6	8 25	37 7 2*
Raiyats' cowdung ...	38 13 6	8 10	36 2 9*

* Straw accounted for in valuation.

The deficient rainfall from August to October did not allow the the stuff to have its full play on the crop, or the superiority of properly conserved cowdung would have been more marked.

C.—Distribution of Seeds.—The following seeds were distributed from the farm store during the period under report:—

		Md.	sr.
Jute seed, Deswal	... ...	3	0
„ Tosha	... ...	0	32
„ Kakya Bombai No. 7	... ...	3	37
„ Barapat	... ...	0	6
„ Red Deshi	... ...	6	25
Paddy seed, Dadkhani	... ...	19	30
„ Badshabhog	... ...	18	35
„ Samudrabali	... ...	10	10
„ Nagra	... ...	2	0
„ Kataribhog	... ...	0	30
„ Banktulsi	... ...	0	5

An extensive area has now been set apart for production of sugarcane, and pure seeds of paddy and jute varieties for seed supply. Pure-line cultures of paddy and jute varieties have also been undertaken with a view to secure the best standard of each variety for gradual development and supply.

D.—Fowl Breeding.—This section of the farm started with 3 cocks and 9 hens of the black Langshan breed on the 1st April 1914. One cock and 5 hens were supplied to Bolpur (Birbhum) during the year under report. The figures of stock-taking on 31st March 1915 stood as—

Cocks	19
Hens	20
Pullets	2
Chickens	9

E.—Practical training of young men.—Four young men, with fair educational qualifications, received practical training on the farm during the year. All of them have been engaged as fieldmen demonstrators at the end of the year for work in rural areas outside. The sanctioned number of such apprentices on the farm is now 6, and it has been proposed to raise it to 20.

9. *Receipts and Expenditure—*

Receipts.	Rs.	A.	P.	Expenditure.	Rs.	A.	P.
Total remittance to treasury during the year	1,158	14	0	Capital expenditure (for laying out incomplete areas) ...	388	0	0
Amount adjusted on the stock transfer system ...	6	10	0	Wages of labourers and cost of all other contingencies ...	9,888	1	4
Bills receivable ...	331	12	3	Cost of management and supervision ...	3,686	14	9
Valuation of seed grains in stock for sale (based) on market rate ...	2,682	2	6	Cost for the training of young men (apprentices) ...	596	8	0
Total ...	4,179	6	9	Total ...	14,559	8	1

10. *Visitors.*—A few landed gentlemen and cultivators visited the farm during the year. All enquiries and instructions regarding agricultural matters were duly attended to. The rural public are cordially invited to see here things for themselves and to discuss the respective merits or otherwise of each. The Collector of the district paid a visit to the farm.

11. *Management and Inspection.*—Babu Chuni Lal Mustafi was the Superintendent in immediate charge of the farm during the year.

Babus Bisweswar Chatterjee, Harendra Chandra Bose and Birbar Chottoroy, the three Overseers, gave satisfaction in their works.

The Director of Agriculture, Bengal, inspected the station once; the Agricultural Chemist visited 5 or 6 times; the Economic Botanist and the Fibre Expert visited thrice; and the Deputy Director made frequent inspections during the year.

Appendix—Scheme of work for the year 1915-16.

CHUNI LAL MUSTAFI,
Superintendent.

APPENDIX

Experimental Scheme of the Chinsurah Agricultural Station, for 1915-16.

I.—Sugarcane ... ... 3·87 acres.

A.—Seed selection, propagation and production for supply of cuttings—planted indouble rows 18″ apart, with a space of 18″ between furrows 2′ wide—manured with cowdung 200 maunds + castor cake 8 maunds + super 3maunds per acre ... ... ·27 acre.

B.—Comparison of the Java system of growing canes with the country system, along with a comparison in outturn of the varieties planted, viz., Yellow Tanna, B208, B147, Sarethi, Samshara, Dacca Ganderi and Mauritius (from Haripal) on one-tenth acre each, in duplicate—manured with cowdung, 100 maunds +castor cake 8 maunds + ammonium sulphate 1½ maund + super 3 maunds per acre— ... ... 2·80 acres.

(1) Java system of growing ... ... 1·4 acre.
(2) Country ditto ... ... 1·4 ,,

C.—Variety experiment to test outturn and financial results—manured with cow-dung 100 maunds + castor cake 10 maunds Bonemeal 3 maunds per acre—Yellow Tanna, B208, B147, Samshara, Mauritius Tanna, Pauri, Mauritius(Haripal) and Khari on one-twentieth acre each, in duplicate—planted in double rows 18″ apart with a space of 18″ between furrows 2′ wide ... ·80 acre.

II.—Jute ... ... 24·13 acres.

A.—Seed selection for improvement of the type and for supply—manured with castor cake 5 maunds per acre— ... ... 8·93 acres.

1.—Olitorius—

(*a*) Red deshi ... ... 4·27 acres.
(*b*) Tosha ... ... 2·0 ,,

2.—Capsularis—

(*a*) Kakya Bombai No. 7 ... ... 1·07 ,,
(*b*) Deswal ... ... ·50 ,,
(*c*) Dhaleswar ... ... ·51 ,,
(*d*) Barapat ... ... ·58 ,,

B.—Seed selection, under the pure-line culture system, to attain perfection of the seed for future development—manured with cowdung 100 maunds peracre ... ... 1·20 acre.

C.—Comparison of the Kakya Bombai No. 7, Belgachia No. 4 and Red Deshi varieties—half the area for fibre and the other half for seed—manured with cowdung 60 maunds per acre— ... 4 acres.

(1) Kakya Bombai No. 7 ... ... 1·6 acre.
(2) Red Deshi ... ... 1·6 ,,
(3) Belgachia No. 4 ... ... ·8 ,,

D.—Manures—on Red Deshi ... ... 5·20 acres.

Series 1.—To find out the stuff suitable for the district—on one-fifth acre each, in duplicate started in 1914-15 ... 1·6 acre.

(1) Unmanured.
(2) Cowdung 100 maunds per acre.
(3) Castor cake 10 maunds per acre.
(4) Cowdung 50 maunds + super 3 maunds + saltpetre 1 maund per acre.

Series 2.—To test if cowdung can be replaced by artificials—on one-fifth acre each, in duplicate ... ... 2 acres.

(1) Unmanured.
(2) Cowdung 100 maunds per acre.
(3) Muriate of potash 100 lbs. + super 100 lbs. + ammonium sulphate, 50 lbs. per acre.
(4) Ammonium sulphate 50 lbs. + super 100 lbs. per acre.
(5) Muriate of potash 100 lbs. per acre.

Series 3.—To test the utility of sodium and calcium nitrates—on one-fifth acre each, in duplicate ... ... 1·6 acres.

(1) Unmanured.
(2) Cowdung 80 maunds per acre.
(3) Sodium nitrate 1 maund per acre.
(4) Calcium nitrate 1 maund per acre.

E.—Method of Weeding—on Red Deshi—Comparison in financial results under thedifferent systems—on one-fifth acre each, in duplicate—manured with cowdung 100 maunds per acre— ... ... ·80 acre.

(1) Weeding by P. J. Hand Hoe—crop sown in lines 8"—9" apart— ... ... ·4 acres.

(2) Weeding by "Nirani" as in practice—sowing usual ... ·4 acres.

F.—Suitability of Kakya Bombai for low-land—sowing early— ... 2 acres.

G.—Suitability of Tosha to be succeeded duly in season by aman paddy in the same year—manured with cowdung 100 maunds per acree 2 acres.

III.—*Paddy* ... ... 66·59

A.—Aus—C. P. fine, awned—manured with castor cake 3 maunds per acre. ... ... 5·00

Series 1.—Suitability for the soil and district—crop transplated 1·0

Series 2.—To test the difference under the system of—

(*a*) Sowing broadcast at 30 seers per acre ... ... ·5

(*b*) Crop transplanted—seed-bed rate 15 seers per acre of transplanting ... ... ·5

B.—Aman Paddy ... ... 61·59

1.—Suitability for high-land and comparison of varieties—on 2 acres each, manured with castor cake 3 maunds per acre ... 6·0

(*a*) Karticksal. (*b*) Jatakalma. (*c*) Jhingashal—

2.—Suitability of Kaminishal paddy for the soil, manured with super 3 maunds+saltpetre 30 seers per acre ... ... 2·0

3.—Seed selection for improvement of the type and for supply—on 2 acres each, manured with bonemeal 3 maunds, saltpetre 30 seers per acre ... ... 12·0

(*a*) Nagra, (*c*) Dadkhani, (*e*) Kataribhog,
(*b*) Badshabhog, (*d*) Samudrabali, (*f*) Hatishal.

4.—Seed selection, under the pure-line culture system, to attain perfection of the seed for gradual development—manured with cowdung 100 maunds+super 3 maunds per acre ... 2·0

5.—Varieties—comparison in outturn and finance on ½ acre each, in duplicate—manured with cowdung 50 maunds+bonemeal 3 maunds per acre ... ... 8·0

(*a*) Nagra
(*b*) Badshabhog
(*c*) Dadkhani
(*d*) Samudrabali
(*e*) Kataribhog
(*f*) Hatishal
(*g*) Indursail
(*h*) Sada Samba

6.—Manures—to find out a suitable application for the district ... 14·4

Series (1)—On one-fifth acre each, in triplicate—On Nagra (started in 1914-15) ... ... 5·4

(*a*) Unmanured.
(*b*) Cowdung 100 maunds per acre.
(*c*) „ 100 „ bonemeal 3 maunds per acre.
(*d*) „ 100 „ ammonium sulphate 1 maund per acre.
(*e*) „ 100 „ ammonium sulphate 1 maund+bonemeal 3 maunds per acre.
(*f*) Bonemeal 3 maunds, ammonium sulphate 1 maund per acre.
(*g*) „ 3 „ per acre.
(*h*) Green manured with Dhaincha sown at 8 seers per acre.
(*i*) Nitrolim 1 maund+Super 3 maunds per acre.

Series (2)—On one acre each—Nagra paddy ... ... 4·0

(*a*) Unmanured.
(*b*) Sodium nitrate 1 maund per acre.
(*c*) Calcium nitrate 1 maund per acre.
(*d*) Cowdung 100 maunds per acre.

Series (3)—On ½ acre each—Badshabhog paddy—(started in 1914-15) ... ... 1·0

(*a*) Unmanured—Dhaincha green manured to paddy.
(*b*) Dhaincha, manured with basic slag 336 lbs.; muriate of potash 168 lbs. per acre, green manured to paddy.

Series (4)—Comparison in outturn from the uses of properly conserved cowdung and heaped cowdung (started in 1914-15)—on 2 acres each—

Hatisal paddy... ... ... 4·0

(*a*) Farm cowdung 60 maunds per acre.
(*b*) Raiyats „ 60 „ „

.—Methods of cultivation (started in 1914-15) ... ... 17·19

Series (1)—Time of ploughing—on 2 acres—Kataribhog paddy—manured with bonemeal 3 maunds per acre to find out the difference in results from—

(*a*) Ploughing in January—February
(*b*) „ „ April—May } ... ... 4·0

Series (2)—Kind of plough—on one acre each—Samudrabali paddy—manured with bonemeal 3 maunds per acre—to find out the difference in results from ... ... 2·0

(*a*) Using country plough ...
(*b*) Using Hindustan „ ... ... } for paddy cultivation.

Series (3)—Seed rates for nursery—Nagra paddy—to compare financial results from sowing seed-beds at different rates—one-fifth acre each seed-bed—the transplanting area, green manured with Dhaincha, from each, and the results thereof, to be carefully recorded ... ... 11·19

Seed rates—

(*a*) 20 seers per bigha.
(*b*) 30 „ „
(*c*) 40 „ „
(*d*) 80 „ „

IV—*Chillies*—to test suitability and financial results—manured with cowdung 50 maunds per acre ashes ... ... 1·0

V.—*Potato*—Comparison of varieties—on one-tenth acre each, manured with cowdung 100 maunds—castor cake 10 maunds+super 3 maunds+saltpetre 30 seers per acre ... ... ·70

(1) Patna
(2) Naini Tal
(3) Darjeeling
(4) Italian
(5) Magnum bonum
(6) Farrukkabad
(7) Deshi

VI. *Fruit culture*—Trial of suitability and production for supply of grafts and suckers ... ... 3·71

A. Banana and Plantain ... ... 1·25.

(1) Local varieties—kanchkela, kanthali, martaman, champa and chini-champa.
(2) Rampal (Dacca) varieties—Sabri, Agniswar, Amritasagar, Dudhsagar and Kanaibansi.

B. Papaw—Ceylon and Bombay varieties—manured with bonemeal 3 mds. per acre —cowdung ash .. .. 1·0

C. Fruit trees and grafts—cowdung 150 mds. Bonemeal 5 mds. 1·46

(1) Mangoes (3) Peaches (5) Cocoa : palms
(2) Litchies (4) Limes (6) Areca : palms

D. Datepalm—for the sugar industry—along fencing

Total area under experiments 100·0 acres.

VII. *Demonstrations*—Of what have been definitely established—to be shewn to and impressed on interested visitors, and communicated throughout the district ... 44·08.

A. Aman paddy—Nagra ... ... 39·08

Series (1) Transplanting different numbers of seedlings per hole at varying periods—manured with bonemeal 3 mds., saltpetre 30 seers per acre ... ... 11·95

a. Two seedlings per hole—1st week of July ... 5 acres.
b. Four ditto ditto 1st Do. ... 5·0
c. Four ditto ditto 3rd Do. August ... 1·04
d. Eight ditto ditto 3rd Do. do. ... ·91

Series (2) Manurial ... ... 25·13

a. Unmanured ... ... 5·0
b. Cowdung, 80 mds. per acre ... ... 5·0
c. Bonemeal 3 mds. Saltpetre 30 seers per acre ... 2·5
d. Castorcake 5 mds per acre ... ... 2·63
e. Greenmanured with dhaincha sown at 8 srs. per acre ... ... 5·0
f. Greenmanured with sunnhemp sown at 30 srs. ... 5·0

Series (3) Normal transplanting after a harvest of matured jute ... ... 2·0

B. Jute—Red Deshi ... ... 5·0

Series 1. Thinning at different spaces—manured with castorcake 6 mds. per acre—½ acre each.

a. Thinned at 2—3″ apart
b. Ditto 4—5″ „ } 1·0

Series 2. Harvesting at different stages—manured with castorcake 6 mds. per acre—⅓ acre each.

a. In flower
b. Pods half formed } 1·0
c. Seeds, ripe

Series 3. Manuring—one acre each ... ... 3·0

a. Cowdung 100 mds. per acre
b. Castorcake 6 mds. ditto
c. Ditto 3 mds. nitrolim 30 seers per acre

VIII. *Ordinary cultivation* on irregular areas left ... ... 61·75

A. Jute ... . 6·39

1. Tosha followed by aman paddy—Nagra... ... 3·39
2. Kakya Bombai followed by aman paddy—Nagra ... 1·77
3. Red Deshi on high-land ... ... ·20
4. Kakya Bombai high-land ... ... 1·03

B. Arhar—with 6 mds. lime per acre ashes ... .. ·55

C. Aman paddy, unmanured ... ... 16·57

1. Nagra ... ... 7·54
2. Badshabhog ... ... 3·09
3. Dadkhani ... ... 3·80
4. Samudrabali ... ... ·14
5. Kataribhog ... ... ·12
6. Hatishal ... ... ·55
7. Banktulshi ... ... 1·33

D. Pasture during khariff season (followed by a rabi pulse) 4·12 shewn as in gross area.

E. Autumn and Winter sowings after khariff harvest ... 34·12

1. Kalai, mung, pea, gram, khesari and lentils ... 26·12
2. Mustard, local and Raipur ... ... 6·0
3. Cereals—wheat and barley ... ... 2·0

F. Greenmanuring crops, shown in pages 4, 5 and 6 of the scheme—(shewn as in gross area) ... ... 22·79

Total area under cultivation in 1915-16 ... 228·62 acres

G. Total area under paddy seed beds in 1915-16 (shewn as in gross area) 11·61 acres

Total gross area under cultivation in 1915-16 ... 240·23 acres.

Abstract Statement of Crops in 1915-16.

CROP.	Area under experiments.	Area under demonstrations.	Area under ordinary cultivation.	Total area under cultivation.	REMARKS.
Sugarcanes ...	3·87	...	...	3·87	
Jute—Red Deshi ...	11·87	5·00	·20	17·07	Jute—
„ Kakya Bombai	4·67	...	2·80	7·47	Experiment 24·13
„ Belgachia ...	·80	...	...	·80	Demonstration. 5·00
„ Deswal ...	·50	...	...	·50	
„ Dhaleswar ...	·51	...	...	·51	Ordinary ... 6.39
„ Barapat ...	·58	...	...	·58	
„ Pure lines ...	1·20	...	...	1·20	Total ... 35·52
„ Tosha ...	4·00	...	3·39	7·39	
Paddy C. P. Aus ...	5·00	...	...	5·00	Paddy—
„ Karticksal ...	2·00	...	...	2·00	Experiment 66·59
„ Jatakalma ...	2·00	...	...	2·00	Demonstration. 39·08
„ Jhingashal ...	2·00	...	...	2·00	
„ Kaminishal ...	2·00	...	...	2·00	Ordinary ... 16·57
„ Pure lines ...	2·00	...	...	2·00	
„ Nagra ...	23·59	39·08	7·54	70·21	Total ... 122·24
„ Badshabhog ...	4·00	...	3·09	7·09	
„ Dadkhani ...	3·00	...	3·80	6·80	
„ Samudrabali ..	5·00	...	·14	5·14	
„ Kataribhog ...	7·00	...	·12	7·12	
„ Hatishal ...	7·00	...	·55	7·55	
„ Indursail ...	1·00	...	...	1·00	
„ Sada Samba ...	1·00	...	...	1·00	
„ Banktulsi ...	...	...	1·33	1·33	
Arhar ...	...	...	·55	·55	
Chillies ...	1·00	...	...	1·00	
Potato ...	·70	...	...	·70	
Fruit culture ...	3·71	...	...	3·71	Date palms along fencing.
Kharif pasture ...	...	...	...	4·12	
Autumn and winter sowings.	...	...	34·12	34·12	
Green manuring crops.	...	...	...	22·79	Included in gross areas carried direct to total.
Paddy seed beds ...	...	...	...	11·61	
Total ...	100·00	44·08	57·63	240·23	Total gross area under cultivation.

C. L. MUSTAFI,
Superintendent.

Kalimpong Farm.

2. Good work has been done during the year 1914-15. The maize crop was again excellent. Mr. Edmunds who took over charge in June 1914, is now well acquanited with the farm and all the work in hand. Average outturn of 30 maunds of maize per acre over a large area of nearly 20 acres is good enough material to bring to the notice of the cultivators of this hill-side. True these returns were only obtained by heavy applications of farm yard manure, but this practice is being followed by many local people, as is shown by the great difficulty the farm has had this year in getting any outside manure at all. Accordingly we must be wise this year and store as much manure as possible for next year's crops. The outturns of rice were again poor, but I look forward to obtaining in a few years some definite data from rice grown at different altitudes on this hill-side. We are trying rice on 5 acres of land this year at the lowest altitude of the farm. The results will be very interesting. There ought to be no difficulty in obtaining a full supply of water on these lowest plots.

Pineapples have done exceedingly well. Peaches have fruited profusely, but although the fruits are very large, they have not that colour and ripeness that are obtained at Quetta or on the plains. The fruits do very well for cooking. We must try to obtain an early fruiting variety, one that will give ripe fruit in February and March, to see if we cannot get the requisite colour of a dessert peach. The fruits are now harvested in June on the present trees and as the rainy season and mist have then set in, there is no chance of obtaining the requisite colour and bloom.

The rainfall recorded on the farm in 1914-15 was 98·22″ on 137 rainy days as compared with 98·88 on 157 days in 1913 and a normal of 103·01 on 154 rainy days. Accordingly 1914 was a rather dry year. The latter part of the year from September to December, inclusive, only had 7″ of rain as compared with a normal of 20″ and was therefore very dry. This is the chief growing season for rice, and hence 1914 was a very unfavourable year for this as well as for kodo, buckwheat and all rabi crops. The season was quite favourable for maize.

It is evident from Mr. Edmunds' table of crop yields that maize does well on this hill-side, but that paddy is rather poor. Kodo also does well and is a favourite with local cultivators.

Receipts and expenditure for 1914-15 are very satisfactory.

From the figures it will be seen that the farm has had a good year and is in a thriving condition.

I publish Mr. Edmunds' report below:—

F. Smith,

Deputy Director of Agriculture, Bengal.

ANNUAL REPORT OF THE SUPERINTENDENT OF THE DEMONSTRATION FARM, ST. ANDREW'S COLONIAL HOMES, KALIMPONG, FOR THE YEAR 1914-15.

Situation and History.—The village of Kalimpong is the head-quarter of the Sub-division of Daling (a Government estate of 401 square miles). The district was ceded to the British Government after the Bhutanese War of 1864-65. The settlement of the estate restricts the ownership of land to hill tribes, and at the same time makes provisions by which Lepchas and Bhutias are only allowed to dispose of their land amongst themselves. This condition was introduced to prevent the more thrifty and enterprising Nepalese from becoming possessors of all the land in the district, which would to a great extent have been the case had no steps been taken to prevent it.

All transfers of land go through the Khas Mahal Office, and an annual ground rent of from As. 6 to Re. 1-4 is charged by Government.

Kalimpong has a fairly large bazar and is the mart for produce of a considerably large area in addition to which it is the centre of Tibetan trade with Bengal.

It is 38 miles from Siliguri, Eastern Bengal State Railway, and 28 miles from Darjeeling; Ghoom station 4 miles nearer. Riang, a station on the Siliguri-Tista Valley Extension, Darjeeling-Himalayan Railway, brings Kalimpong to a 16 miles road journey.

The Demonstration Farm is situated below the bazar on the easterly slope which runs down to the Rilli river, a tributary of the Tista, joining the latter at Riang.

Although about 24 acres of land had been cultivated by the Homes prior to April 1907, the remaining portion was not taken over from the native cultivators until December of that year, so it was not till the beginning of 1908 that a proper start was made.

During the first two years much of the time was spent in preparatory works such as erection of farm buildings, boundary pillars, fencing and convenient roads. A few experiments, however, were carried out with various crops.

2. *Area Elevation.*—A survey of the farm was completed in April 1911 at a cost of Rs. 136-0-6. The plots were all numbered and the area computed.

The total area, exclusive of Jhoras, is 60·78 acres, of which 9·54 are occupied with roads, houses, Farm buildings, waste ground and under trees and bamboos, leaving 51·24 acres for cultivation. During the year under report 23·9 acres were under experimental cultivation, the remainder being partly cultivated under ordinary crops and partly given to coolies on half-crop system. The elevation is as follows :—

Lower boundary ...	...	3,317 feet.
Farm building ...	...	3,693 „
Upper boundary ...	...	3,864 „

The level section through the farm from top to bottom shows an average gradient of 1 to 5. This is a very moderate slope for these hills, and gives a situation difficult to improve on for experimental work.

3. *Irrigation.*—The only irrigation necessary is for the rice crop, and this consists of turning the water out of one of the many streams on to the rice terraces when required. In the winter no irrigation is possible, but few crops grow at that season.

4. *Character of the Soil.*—The soil is a rich clay loam, whose reaction is acid.

5. *Meteorology.*—The following table shows the normal rainfall for six years and that of 1914 at the Demonstration Farm :—

Month.	Normal six years.		1914.	
	Rainfall, inches.	Rainy days.	Rainfall, inches.	Rainy days.
January	·63	1	·99	2
February	1·40	4	1·75	3
March	2·16	5	·63	5
April	4·08	17	3·84	19
May	5·30	16	5·18	15
June	15·41	18	14·42	15
July	31·27	27	34·61	27
August	25·68	27	29·54	28
September	8·49	15	6·53	15
October	2·54	5	·21	2
November	3·54	5	·52	6
December	·03	1	Nil.	Nil.
Total ...	100·53	141	98·22	137

1915.	Rainfall inches.	Rainy days.
January	Nil	Nil.
February	3·0	8 days.
March	1·14	9 „

From the table given above, it will be noticed that during the year under report there was more rain recorded in the months of July and August (viz. 64·15 inches) than has been the case since the establishment of this farm.

The season was favourable from the commencement, and the maize crop, ghaiya (dry rice), soy-beans and other pulses were well forward; consequently no damage was done by the heavy rainfall. On the other hand it enables us to transplant our paddy freely. During the last quarter we had a dry spell as compared with our normal, which caused a decrease in yield in paddy, marwa, and various pulses, at the same time our *Rabi* crops, such as buckwheat, wheat, barley, etc., were more or less failures.

6. *Operations during the year.*—A.—*General Crops grown.* The following tables gives the area under each crop grown by the farm, and on the half-share system, with the total outturn, yield per acre, price per maund (82 lbs.) total value of crops:—

Crop.	Area in acres.	Outturn.	Yield per acre	Price per maund.	Total value of crops.	
		Md. Sr.	Md. Sr.	Rs. A.	Rs. A. P.	Rs. A. P.
Maize	17·60	507 16	28 34	3 4	1,649 2 0	1,899 11 0
½ crop maize ...	10 74	77 4	7 0	3 4	250 9 0	
Rice (aman)	9·45	133 35	14 0	3 0	400 14 0	700 6 0
Straw	9·45	278 30	30 0	0 8	139 6 0	
½ Crop rice	6·55	42 10	6 20	3 0	126 12 0	
Do. Straw	6·55	66 30	6 0	0 8	33 6 0	
Kodo	2·25	51 35	23 0	3 6	175 1 3	387 11 3
Kodo ½ crop	10·0	63 0	6 12	3 6	212 10 0	
Ghaiya or aus paddy ...	·75	15 6	20 8	3 0	45 7 6	57 11 6
Ghaiya straws ...	·75	98 0	130 26	0 2	12 4 0	
Buckwheat	3·50	14 0	4 0	2 10	56 12 0	
Bhatmas (Soy beans) ...	2·77	30 36	11 0	3 12	115 14 0	
Kalai	1·0	4 10	4 10	5 8	23 6 0	
Sugarcane (gur) ...	·53	16 30	31 25	8 8	142 6 0	
Gahat	·35	5 25	16 23	3 12	21 1 6	
Potatoes	·8	6 15	76 35	4 8	28 11 0	
Khar (thatching grass) ...	1·50	150 0	100 0	0 8	75 0 0	
Barley	1·0	Failure due to drought.				
Wheat	3·0	Do. do		do.		

From the above figures it is evident that maize and kodo in rotation are the most economical crops for this hill side. Kodo, buckwheat, soybeans, kalai and other pulses are grown after maize on the same land in the one year, but none of the latter named crops are so popular as kodo. Rice grown on the half-crop system is much more profitable than when grown by the farm, due to heavy expenses incurred in cultivating rice on these hill-sides. Maize, kodo, pulses and buckwheat grown on the half-share system are not so profitable as rice, but they all yield a much larger return than is obtained by mere rent.

B.—*Experimental Work*—

Primary ... (1) Maize.
(2) Winter rice (*aman dhan.*)

Secondary ... (3) Autumn rice (*aus dhan.*)
(4) Kodo.
(5) Buckwheat.
(6) Soybeans.
(7) Miscellaneous.

B. 1. Zea mays—maize—makai—bhutta.

In 1907-08 experiments were commenced with a view to improve the crops as grown in this district, and also to compare it with Jaunpur maize. The latter after two years' trial, with poor results, was discontinued. Attention was then concentrated on the improvement of the local varieties by means of seed selection.

The maize at the commencement was of a very mixed nature, containing seeds of all colours, and required seed-to-seed collection. The first few years' trials, however, separated the crops into several varieties, and by the subsequent selection of the best cobs of each type we have obtained five varieties fairly true to type, *i.e.*, yellow round, yellow flat, white round, white flat and red round.

The average outturn of maize of all varieties under cultivation for the last few years is here given :—

	Mds.	srs.		Per acre. Lbs.
1909-10	21	21	or	1,764
1910-11	27	25	„	2,264
1911-12	30	9	„	2,478
1912-13	33	8	„	2,722
1913-14	33	30	„	2,767
1914-15	30	39	„	2,539

These are remarkable figures and a striking illustration of the benefit to be derived from careful selection of seeds.

Seeds sown at the rate of 25 seers per acre between the 2nd and 3rd weeks of March and manure applied at the rate of 250 maunds per acre. Crop was harvested from the end of August to 1st week of September. The proportion of grain to cobs with leaves attached was 51·2 per cent.

(A). *Varieties.*—The variety experiment has shown the following results :—

Variety.	Outturn.					
	1909	1910	1911	1912	1913	1914
Yellow round	19¼	29¼	33¼	37	37½	33¾
„ flat	37½	36½	36	31	26¾	22
White round	26½	32¾	33½	29	33½	37
„ flat	28½	35½	29½	41½	35	31½
Red round	19¾	30½	31½	37	30½	30

These outturns are from one-acre blocks, and the figures backed up by the average for the farm require no comment.

(B). *Effects of Terracing.*—To compare the result of growing ordinary crops (not irrigated rice) on terraced and unterraced land, 2 acres were selected as uniform in fertility and slope as is possible to find on the farm. One acre was terraced at a cost of Rs. 107-5-6. Each plot receives similar treatment, equal amounts of manure and seeds being applied to each.

The following table shows the outturn and cost of production of maize and secondary crops for the last four years.

Terraced Acre.			Unterraced Acre.		
Crop.	Outturn.	Cost of Cultivation.	Crop.	Outturn.	Cost of Cultivation.
1911-12	Mds. srs.	Rs. A. P.	1911-12	Mds. srs.	Rs. A. P.
Maize ...	33 5	40 1 3	Maize ...	38 32	41 11 0
Soybeans— Grain ...	11 35	20 8 6	Soybeans— Grain ...	9 22	24 4 0
Straw ...	15 20		Straw ...	12 10	
1912-13			1912-13		
Maize ...	32 38	44 14 6	Maize ...	36 2	44 14 6
Kodo— Grain ...	22 10		Kodo— Grain ...	24 20	
Straw ...	Estimated Rs. 5.	49 6 3	Straw ...	Estimated Rs. 5.	52 15 3

Terraced Acre.				Unterraced Acre.			
Corp.	Outturn.	Cost of Cultivation.		Corp.	Outturn.	Cost of Cultivation.	
1913-14				1913-14			
Maize ...	30 0	37 10	0	Maize ...	35 20	37 10	0
Kalar—				Kalai—			
Grain ...	5 0	25 0	0	Grain ...	4 30	25 0	0
Straw ...	6 30	0 13	6	Straw ...	5 0		
1914-15				1914-15			
Maize ...	31 12	37 9	0	Maize ...	35 31	38 1	0
Buckwheat local	4 15	14 9	0	Buckwheat local	4 20	14 9	0

During the four years of experiments, maize has been grown on these plots with soybeans, kodo, kalai dal and local buckwheat as secondary crops. So far the outturn of maize has been higher on the unterraced plots. It is now only a matter of a year or two for us to judge which area, terraced or unterraced, will in the long run give the best results. Unless and until the subsoil on the new terraced area gets thoroughly mixed with manure, we cannot definitely say which is advantageous.

It is interesting to note that the secondary crops, soybeans and kalai (pulses) gave higher yields on the terraced acre, while kodo and buckwheat (cereals) gave a greater yield on the unterraced area.

(C). *Manurial experiment.*—Three plots of half acre each have been reserved for this experiment since 1910-11. The condition of the soil and its situation is parallel with each other.

The following results were obtained with maize and Japanese buckwheat :—

Manure per acre.	Outturn of Maize.	Outturn of Buckwheat.
	Mds. srs.	Mds. srs.
1. One hundred maunds manure, 2 maunds super-phosphate.	29 8	3 24
2. One hundred maunds manure	27 14	3 36
3. Unmanured	24 30	1 34

The above figures are not very definite, and the test should be continued for a number of years, before the action of super-phosphate on this farm can be definitely shown. The unmanured plot gave the poorest outturn and if the experiment is carried out on the same plots, the figures may be expected to prove greater differences.

The extremely poor yield of the secondary crop can only be attributed to the deterioration of the Japanese buckwheat seed, together with the drought it experienced when rain was needed.

The following are the details of cost of cultivation of one acre of maize :—

1914-15.	Particulars.	Cost. Rs. A. P.
February 3 ...	Ploughing	3 0 0
Ditto 6 ...	Manure and cost of spreading ...	15 10 0
Ditto 7 ...	Breaking clods	1 6 0
March 19 ...	Ploughing	1 14 0
Do. 19 ...	Twenty-five seers of seed ...	2 5 6
Do. 19 ...	Breaking clods	0 11 0
May 10 ...	Thinning	0 8 0
Do. 16 ...	Hoeing	2 8 0
June 13 ...	Thinning and hoeing ...	2 4 0
August 31 ...	Harvesting	4 0 0
March 8 (1915) ...	Hulling, etc.	3 8 0
	Total ...	37 10 6
	Yield—Maunds 30—17 seers at Rs. 3-4 ...	99 1 0
	Profit	61 6 6

Out of an area of 28·34 acres under maize cultivation during 1914-15 23·34 were under the yellow round variety which seems to be both the most profitable and profitable for cultivation.

The white round variety is another favourite amongst the natives of this hill-side.

Oryza Sativa—Winter Rice—Dhan—Transplanted rice.

Owing to the proximity of this farm to the hill ridge a very limited space is left to act as collecting ground for water, and the crop in consequence is almost entirely dependent on rainfall during these months to ensure the continuous supply of water so essential for its growth. The seed-beds are sown by the end of May; and transplanting commenced by the end of June and completed by the end of July.

The following table gives the area, outturns, and yield per acre of each variety grown on this farm :—

Rice—1914-15.

	Varieties.	Area.	Outturn.	Yield per acre.
		Acres.	Mds. srs.	Mds.
Variety ...	Touli	2·04	28 10	13⅜
	Do.	2·57	42 10	16½
	Do.	2·58	37 20	14¼
	Do.	¼	3 25	14½
	Ratomarsi	¼	2 25	10½
	Mansaura	¼	2 25	10½
	Timurah	¼	1 15	5½
	Ramtulshi	¼	2 0	8
Manure ...	Touli (*nil*)	·33	5 15	16⅛
	Do. (G. M. Soybean) ...	·33	4 15	13¼
	Do. (50 maunds cowdung) ...	·33	3 25	10⅞

Touli (which gives a large whitish grain) is the best yielder on the farm, consequently most of the paddy area was under this variety. During the harvesting a very careful selection of seed was made throughout, results of which should be interesting.

(*a*) The following table gives the figures from 1911 to 1914 for the variety experiment :—

Variety.	Outturn per Acre.							
	1911-12.		1912-13.		1913-14.		1914-15.	
	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.	Grain.	Straw.
	Mds. srs.	Mds. srs.	Mds. srs.	Mds. srs.	Mds. srs.	Mds. srs.	Mds. srs.	Mds.
Touli (Hill rice) ...	14 16	44 28	14 35	26 0	10 20	32 0	14 20	34
Dhanasi	15 8	35 28	11 39	27 12	13 20	34 0	...	...
Krishnabhog	15 4	60 36	8 0	50 32	...	...	...	...
Mansaura	11 32	39 24	13 25	22 16	13 20	38 0	10 20	24
Ratomarsi	17 0	39 8	13 6	20 32	9 10	26 0	10 20	24
Ramtulshi	19 8	53 20	7 16	35 28	8 30	40 0	8 0	28
Timurah	...	...	...	...	11 30	37 20	5 20	36

The figures of 1912, 1913 and 1914 show a considerable decrease in outturn from those of 1911-12, except in the case of touli, which year after year has shown marked consistency in these tests irrespective of climatic conditions.

The fertility of the soil and the supply of water has much to do with the above results, and as this is one of the draw-backs in this area, the

figures must stand good for the present until a more suitable area can be selected for this test.

(*b*) During the past six years an experiment has been conducted to test the effect of green-manuring on rice-crops as compared with farm-yard manure and unmanured.

The results of the last two years are here recorded—

Manure.	Outturn per Acre.			
	1913-14.		1914-15.	
	Grain.	Straw.	Grain.	Straw.
	Mds. srs.	Mds. srs.	Mds. srs.	Mds. srs.
1. Unmanured	11 25	32 25	16 15	39 0
2. Fifty maunds cowdung ...	9 15	28 8	10 35	24 30
3. Green manure "Soybeans" Bhatmas.	9 0	27 0	13 5	36 0

So far as manures for rice are concerned, the unmanured plots continue to yield as heavy crops as those manured with 50 maunds cowdung or those green manured with soybeans. This applies particularly to areas supplied with rain-water flowing through the Kalimpong bazar into the various streams.

Details of operations of a rice area as undertaken on the farm, produced from the cultivation book, is appended :—

Area. 2·57 acres.

Variety—Touli, Unmanured.

Date. 1914.	Particulars.	Cost. Rs. a. p.
May 4th ...	Ploughing seed-beds	0 15 0
„ 12th ...	Cutting alis	0 10 0
June 6th ...	Preparing seed-beds and sowing seeds	1 14 0
Ditto ...	2 maunds 25 seers seeds	8 3 0
June 23—25th ...	Ploughing area	8 8 0
„ 25-26th ...	Cutting alis	8 8 0
July 13—16th ...	Second ploughing	6 0 0
Ditto ...	Building alis	6 0 0
July 18—21st ...	Levelling with dandy	4 2 0
Ditto ...	Ditto hands	4 12 0
Ditto ...	Transplanting	9 12 0
October 2—5th ...	Weeding	13 0 0
November 20—26th	Harvesting, carrying, etc. ...	10 0 0
December 4-5th ...	Threshing, winnowing, etc. ..	13 2 0
Ditto ...	Irrigation during the whole period ...	10 4 0
	Total cost of 2·57 acres ...	105 10 0
	Value of yield ...	161 12 0
	Profit ...	56 2 0

B. (3) *Eleusine Coracana—Millet—Marwa—Kodo.*—This crop grows in rotation with maize and is transplanted from the third week of June to the end of July, so that when the maize crop is harvested in August, the kodo covers the land.

The following table shows the average outturns per acre from 1909 to 1914 :—

	Mds.
1909	26
1910	19¾
1911	22¾
1912	23½
1913	27½
1914	23

While the following table gives details of cultivation and cost per acre :—

Kodo—1 acre.

			Rs. a.	Rs. a.
Seed-bed—				
January 30th	...	Ploughing ...	0 5	
April 29th	...	Ditto ...	... 0 5	
Ditto	...	Manure ...	... 2 8	
May 21st	...	Breaking clods	... 0 10	
Ditto	...	12 seers seeds	... 1 2	
June 20th	...	Weeding ...	... 0 6	
				5 4
In maize crop—				
July 4—11th	...	Weeding ...	... 1 0	
Ditto	...	Digging ...	... 2 0	
Ditto	...	Transplanting	... 15 0	
September 4-5th	...	Cutting maize stalks	... 1 8	
„ 7-8th	...	Weeding ...	... 8 8	
November 17-18th	...	Harvesting and carrying to godown ...	... 9 2	
December 19—23rd	...	Threshing, weighing, etc.	5 0	
				42 2
		Total cost of 1 acre	... ...	47 6
		Yield, Grain 24 maunds at Rs. 3-6	... 81 0	
		Straw estimated per acre ...	... 5 0	
				86 0
		Profit	... ...	38 10

4. *Fagopyrum Esculentum—Buckwheat—Phaphar.*—This crop is grown in rotation after maize. Seed is sown in September and is ready for harvesting at the beginning of December. A variety test is being continued since 1911 with Japanese and local buckwheat with the following results :—

	Variety.	Yield per acre.		
		Area.	Grain.	Straw.
		Acre.	Mds. s.	Mds. s.
1911	Japanese Buckwheat ...	·5	1 30	2 16
	(Local) „	·5	12 24	50 10
1912	Japanese Buckwheat ...	·5	9 0	12 26
	Buckwheat (Local)	·5	9 24	27 0
1913	Japanese Buckwheat ...	·5	9 15	10 10
	Buckwheat (Local)	·5	12 0	55 0
1914	Japanese Buckwheat ...	·5	3 36	8 10
	Buckwheat (Local)	·5	4 20	17 5

From these figures there is no reason to change the local variety, the more so as no cultivator is anxious to try the foreign variety.

The following table shows the cost and details of cultivation of this crop :—

Buckwheat—1 acre after Maize.

			Rs. as.
September 12th	...	Cutting and carrying maize stalks ...	1 13
„ 15th	...	Ploughing	3 12
„ 22nd	...	Sowing seeds	2 4
„ 22nd	...	30 seers seed	1 14
December 14th	...	Harvesting, threshing and carrying ...	4 14
		Total ...	14 9
		Value of yield ...	11 13
		Loss ...	2 12

These varieties of wheat local, Pusa No. 12, and Duram (dry) were tried on an acre plot each; due to drought, from October 1914 to February 1915, the crop (the little there was) had to be grazed down.

An acre under local barley was treated likewise.

5. *Unirrigated Rice* (Aus dhan or Ghaiya).—This crop is sown usually broadcast on the slopes, but on the farm the practice is to sow it on the ridge and furrow system.

In 1913 on half an acre an outturn of 11¼ maunds grain *plus* 74½ maunds straw was obtained at an expenditure of Rs. 18-7, and in 1914 on three-fourths of an acre an outturn of 15 maunds 6 seers of grain *plus* 98 maunds of straw was obtained at an expenditure of Rs. 29-9. This crop does exceedingly well on a well drained and exposed area, and by sowing seeds on ridge system in rows 1 foot apart and seeds dibbled 8 inches apart.

Leguminous.—The following crops belonging to this order are grown in the district and on this farm :—

Rotanical name.	English name.	Nepalese name.	No. of varieties.	Remarks.
Glysine hispida ...	Soybean ...	Bhatmas ...	6	Lepcha, name, Selliyan.
Phaseolus mungo ...	Dal ...	Dal-Kalai ...	3	
Ditto radiatus ...	„ ...	Mungi-Dal ...	1	
Ditto calcaratus ...	.....	Mashyem ...	3	
Ditto sublobatus ...	.....	Ditto ...	1	This species is often called Gurans.
Dolichos biflorus ...	.....	Gahat ...	2	

Soybean.—The following varieties were grown on the farm :—

Variety.	Area.	Outturn per acre.		Outturn per acre.		Outturn per acre.		Remarks.
		1912 grain.	1913 straw.	1913 grain.	1914 straw.	1914 grain.	1915 straw.	
		Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	
Nepali Bhatmas	·5	14	10	16¼	14	20½	23	Whole season crop grows alone.
Barmeli ...	·5	5	7	13	20	8½	15	Grow in rotation with maize.
Green ...	·5	4½	6	13	20	8⅞	14½	
Chocolate ...	·5	9½	16	14⅛	19½	9¾	17½	
Black ...	·5	6¼	13	11¼	17¼	8¼	19	

The first two varieties in addition to the white, which is not grown on this farm, belong to the erect growing varieties, while the last three mentioned are of trailing habits.

All these leguminous, crops can be grown in rotation with maize. However, Nepali soybeans produce very little when grown along with the maize, but when grown alone they yield heavily. They cannot, however, compete with maize. The cost of cultivation of these crops is Rs. 27 per acre, except Nepali variety which, when grown alone in the open, costs Rs. 55 per acre. The value of Nepali soybeans is Rs. 4-8 a maund and of the other varieties Rs. 3-1, Rs. 3-12.

(B)—(7) 1. *Jute.—Corochorus Capsularis.*—This crop was tried for three years, an outturn of 2½ maunds per acre was the best yield we could obtain, subsequently it was discontinued.

2. *Saccharum Officinarum—Sugarcane.*—This crop takes 18 months to come to maturity on this hill-side as compared with 10 months on the plains. It is profitable to grow a small area for chewing purposes. This year instead of the canes being sold to outsiders from November to March

a sugarcane mill and pan were purchased from Messrs. Burn & Company, Howrah, for a sum of Rs. 95, including railway freight, cart-hire, and from an area of ·53 acre an outturn of 16 maunds 30 seers of *gur* was obtained and sold at Rs. 8-8 per maund of Rs. 142-6. In comparison with the proceeds of last year from chewing canes (sold for Rs. 93), the *gur* at an extra cost of Rs. 23 showing a clear profit of Rs. 26-6 ; besides this Rs. 10 worth of chewing canes were sold and 3,500 cuttings for seed purpose for extending this cultivation were made.

3. *Phaseolus—Mungo—Dal—Kalai.*—One acre was cultivated under this crop and an outturn of 4 maunds 10 seers was recorded as compared with 5 maunds 2 seers for last year. The dry spell and the high elevation of the field selected, accounts for this decrease.

4. *Dolichos biflorus—Gahat.*—An area of ·35 acre under this crop was tried, and an outturn of 5 maunds 25 seers of seeds were obtained, that is on an average of 16½ maunds per acre. The figures show a good result giving a clear profit of Rs. 27-14 per acre, after deducting cultivation expenses.

5. *Potatoes.*—An experiment was tried with 1 maund of Italian potatoes on an area of ·8 acre, and an outturn of 6 maunds 15 seers was obtained. There being no source of irrigation, a better yield could not be expected. The total cultivation expenses were Rs. 24-7 including the price of seed and cooly hire (Rs. 17). The potatoes were sold at Rs. 4-8 per maund—Rs. 28-11, thus yielding a clear profit of Rs. 51 per acre.

6. *Fruit culture.*—One hundred and fifty-eight fruit trees were ordered from Messrs. Bunyard & Co., Maidstone, Kent, and received in December 1907. The trees were first grown under shade until conditions were favourable for out-door planting. The larger varieties were planted in June 1908, and the remainder in 1909.

The following table shows the number of trees received, and the number living at the end of each year after planting :—

Kind of trees.	Number imported.	1910.	1911.	1912.	1913.	1914.
Apple	12	8	5	2	2	2
Apricot	12	5	2	2	2	2
Nectarine	6	1	1	...	...	...
Plum	24	11	6	4	4	3
Cherry	18	7	7	6	6	5
Pear	18	4	3	3	1	1
Peach	6	...	...	...	...	...
Walnut	6	6	6	6	6	4
Fig	6	5	2	2	2	2
Wine	6	3	3	3	2	1
Gooseberry ...	12	...	...	...	...	...
Current	12	...	...	...	...	...
Raspberry ...	20	...	...	...	...	...
Total ...	158	50	35	28	25	20

These English fruit trees have received every attention and care, the rainfall being too high and the site seems to be unfavourable needing a much higher elevation than 3,600 feet being the elevation of the present area.

Nine Australian Naval orange trees were planted on 18th May 1911 and gives promises of doing well. These trees were purchased from Messrs. E. and W. Hackett of Adelaide.

Pine apples.—Suckers of the "Queen" pine were obtained from the Kalimpong Government Fruit Nurseries in August 1908 and planted on ·15 acre. The produce of this crop is as follows :—

Year.	Number of Pines.	Value. Rs.	A.	P.
1909	36	2	4	0
1910	340	45	1	6
1911	476	85	5	0
1912	719	112	5	6
1913	894	139	11	0
1914	937	117	2	0

The pines were sold at an average price of 2½ annas up to 1913 and during 1914, an all round price of 2 annas each was charged. Half an acre of land near the farm buildings has been planted out with this crop. This "Queen" variety is much sought after by the villagers, and a large number of suckers have been supplied.

Bananas, limes, papayas, peaches, oranges and guavas are also cultivated largely, and from an area of 2½ acres under fruit the sum of Rs. 364-14-9 was realized. This includes the pines.

7. *Receipts and Expenditure.*—A copy of the Balance Sheet for the year ending 31st March 1915 is here given.

Receipts—	Rs.	A.	P.	*Expenditure*—	Rs.	A.	P.
Balance from 1913-14	1,887	12	10	Labour	1,895	15	9
Government grant	5,000	0	0	Superintendence ...	2,116	1	6
Farm produce	4,071	4	3		4,112	1	3
Miscellaneous receipts	251	8	6	Miscellaneous seeds, manures, repairs, postage, etc.	585	7	0
Bullocks	120	15	0	Bullocks	211	0	0
				Capital outlay	915	15	6
				Road and drains	692	0	0
				Manager's house repairs—furniture	865	1	8
				Implements	136	3	0
				⅓ Crop to homes	2,027	6	9
				Balance in hand carried forward	1,786	5	5
Total	11,331	8	7	Total	11,331	8	7

The value of the total produce sold shows an increase of Rs. 783-12 over that of 1913-14, while the wages bill for monthly and daily labour shows a decrease of Rs. 169-7-3.

8. *Acknowledgment and training.*—We are again indebted to Mr. H. F. Green of Mungsong for his kindness in valuing the farm stock, as at 31st March 1915 was Rs. 2,230 as compared with 31st March 1914, Rs. 2,348-1.

During the months from July to October 1914 four boys of the Homes (now in New Zealand) came down twice a week for instruction and practical training in general agriculture and fruit farming. Besides these the Rev. Dr. Sutherland visited the farm with a number of Masters and senior pupils of the Normal School, on four occasions, 1st for selection of maize for seed purpose on the field at the time of harvesting, 2nd at the time of final selection in March for immediate sowing: 3rd during paddy seed selection and on the 4th occasion for grafting and making gooties on fruit trees. On each of these visits lectures were given on the above points and every one made his own selections and experiments.

The following seeds were distributed during the year 1914-15 :—

	Mds.	srs.		lbs.
Maize	9	15	=	768
Paddy	2	14	=	192
Juar	0	8	=	16
Soybeans	18	½	=	1,477
Pine apple suckers		...		374

The above were supplied locally and to people outside this district.

9. *Management.*—The land for the farm was bought by the St. Andrew's Colonial Homes, and is subject to an annual rental of Rs. 70-1.

The farm is managed by the St. Andrew's Colonial Homes, and the Bengal Government grant of Rs. 5,000 *plus* half the sale-proceeds are sufficient to pay for the upkeep of the farm. The remaining half of the sale-proceeds are credited to the Homes. Mr. H. R. Edmunds took over charge on 15th June 1914.

The programme of work for this farm is drawn up in consultation with the Agricultural Department, Bengal.

Mr. J. R. Blackwood, Director of Agriculture, Bengal, inspected the farm in April 1914 and Mr. F. Smith, Deputy Director of Agriculture Bengal, inspected the farm in June and October 1914.

His Excellency the Governor of Bengal, the Hon'ble Mr. W. R. Gourlay, Mr. T. Rankin, Deputy Commissioner of Darjeeling, and Mr. G. P. Hector, Economic Botanist to the Government of Bengal, visited the farm.

HENRY R. EDMUNDS,

Superintendent.

KALIMPONG.

3. Burdwan Farm.

This little farm did some useful work during the year. Babu Jogendra Charan De, the young man in charge, is beginning to get some experience of local conditions. Outturns of 100 maunds (82 lbs.-1 maund) of *gur* per acre from white tanna sugarcane; 186¾ maunds of potatoes per acre; 15 maunds of jute fibre per acre, and 14 maunds of paddy per acre show that the Superintendent has displayed some energy during the period under review.

I am glad to note that receipts rose to nearly Rs. 2,000 during the year, although ordinary expenditure amounted to Rs. 3,263-0-9. Expenditure should not exceed Rs. 2,500, while receipts ought to about cover expenditure, in order to say that this farm is well managed. I give below the Superintendent's *verbatim* report—

F. SMITH.

Deputy Director of Agriculture, Bengal.

Summary.

Area and soil.
Soil analysis.
Irrigation and drainage.
Meteorology.
Operation of the year 1914-15.
Paddy.
Statement of outturn per acre.
Jute.
Potatoes.
Sugarcane.
Result of sugarcane.
Conservation of cowdung.
Distribution of seeds.
Practical training of apprentices.
Management.
Appendix I—(Farm Account, 1914-15).
,, II—(Statement of area and outturn of crops, 1914-15).
,, III—(Result of Potash Syndicate's Experiment, 1914-15).
,, IV—(Cropping Scheme, 1915-16).

ANNUAL REPORT OF THE SUPERINTENDENT OF THE BURDWAN AGRICULTURAL STATION FOR 1914-15.

This agricultural station was opened in the year 1885 and carried experimental works till the year 1911, when the demonstration work was taken up.

Area and soil.—The total area of the farm is 32 acres. The site was originally a piece of waste land overgrown with jungles.

The soil is a poor sandy loam mostly resembling to pure sand.

The following table gives the Chemical Analysis of average samples of soil and sub-soil of the whole farm :—

	Soil 1st 9".	Sub-soil 2nd 9".
Insoluble silicate and sand	88·52	87·47
Ferric oxide	3·60	3·68
Alumina	4·42	5·27
Lime	·34	·33
Magnesia	·34	·31
Potash *	·31	·32
Soda	·09	·07
Phosphoric acid	·02	·03
Sulpheric acid	·01	·01
Carbonic acid	·04	·06
Organic matter and combined water	2·31	2·45
Total ...	100·00	100·00
* Available Potash	·04	·02
Ditto Phosphoric acid	·002	·001
Nitrogen	·011	·007

The figures denote that the land is exceedingly poor in nitrogen and phosphoric acid and poor in lime, but possibly contains enough potash.

Irrigation and Drainage.—The farm is irrigated from the Eden canal running alongside it. Part of the area about 20 acres can occasionally be irrigated by flow during the rainy reason—provided the main Damodar river is fed by flood. For rest of the season the lands are to be irrigated by three or more lifts.

During the year under report the canal ceased supplying water practically from the 1st of August, owing to the want of flood in the Damodar and kindly granted an omission of water-rate for 20 bighas—say 6⅔ acres.

Meteorology.—The following table gives the normal rainfall at the Burdwan Civil Station and the actual rainfall recorded on the farm :—

Name of month.			Actual rainfall in inches.	Number of rainy days.	Normal of 40 years.	Normal of rainy days.
April	1914	...	1·52	3	2·20	3
May	„	...	10·59	7	5·56	6
June	„	...	8·08	10	10·17	12
July	„	...	14·8	21	12·32	15½
August	„	...	7·14	16	11·49	15
September	„	...	6·49	10	8·59	11
October	„	...	1·15	3	3·93	4
November	„	...	...	...	0·64	¾
December	„	...	0·77	2	0·13	¼
January	1915	...	...	...	0·38	¾
February	„	...	0·61	1	0·89	1½
March	„	...	4·96	5	1·24	1¾
	Total	...	56·11	78	57·54	71½

The rainfall in May went much up to the normal (viz., 10·59—5·56 normal). This sudden outbreak of monsoon caused the jute crop to suffer much in its infancy.

The insufficient rains during the latter part of the kharif season caused a poor outturn of paddy crop.

Operations of the year—

(1) Demonstration work.

(2) Conservation of cowdung.

(3) Distribution of seeds.

(4) Practical training of apprentices.

1. *Demonstration Work.*—The demonstration work on the following crops was taken up during the year under report :—

A.—Paddy.	C.—Potatoes.
B.—Jute.	D.—Sugarcane.

A.—Paddy.

I. The following manurial demonstrations were made :—

(1) Green manure with dhaincha.

(2) Ditto 5 maunds lime per acre.

(3) Sixty maunds cowdung per acre (Farm).

(4) Ditto (Raiyats).

(5) Unmanured (last year bonemeal).

(6) Unmanured.

(7) Paddy after jute.

II. The following table gives the area, total outturn and per acre against the above items :—

Serial No.	Manure per acre or nature of treatment.	Area in acres.	Total outturn.	Outturn per acre.	Value per acre.	Cost per acre.	Profit or loss.	REMARKS. G Grain. S Straw.
			Mds. Sr.	Mds. Sr.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
1	Sixty maunds farm cowdung ...	1	G 18 20 S 35 0	G 18 20 S 35 0	55 0 0	32 12 6	22 3 6	
2	Sixty maunds raiyats' cowdung	4	G 66 20 S 116 0	G 16 25 S 29 0	48 13 0	29 7 0	19 6 0	
3	Green manure with dhaincha 5 maunds lime.	1	G 17 5 S 30 0	G 17 5 S 30 0	50 0 0	29 13 0	20 8 0	
4	Green manure with dhaincha ...	1½	G 23 10 S 34 35	G 15 20 S 23 10	44 9 0	25 5 4	19 3 8	
5	Unmanured (last year Bonemeal)	3	G 39 30 S 63 15	G 13 10 S 21 5	38 6 6	19 12 7	18 9 11	
6	Unmanured	3	G 31 20 S 48 12	G 10 20 S 16 4	30 4 4	17 10 1	12 10 3	
	Paddy after jute	3/8	G 4 16 S 5 0	G 1 7 S 1 12	3 4 0	2 15 3	6 11 3	Completely failed on account of drought.

N. B.—Non Demonstration.

1	2	3	4	5
			Mds. Sr. Ch.	Mds. Sr. Ch.
Grain ...	Seed-bed ...	1	12 15 0	13 15 0
	Potash Syndicate ...	·64	12 34 0	30 2 0

B.—Jute.

This year we demonstrated the following varieties of jute with the following results :—

N. B.—Manured with 100 maunds cowdung.

Serial Number.	Varieties.	Area in acre.	Total outturn.	Outturn per acre.
			Mds.	Mds. sr.
1	Corchorus Capsularis.	2	29	14 20
2	Corchorus Olitorius	1	16	16 0
3	Corchorus Capsularis and Corchorus Olitorius (for seed).	0·8	...	...
		3·8		

C.—Potatoes.

The demonstration with the following varieties were made and with the following result :—

Serial Number.	Varieties.	Area in acres.	Total outturn.	Outturn per acre.	Remarks.
			Mds. sr.	Mds. sr.	
1	Italian ...	1	186 28	186 28	
2	Nani Tal ...	·2	12 0	60 0	Failed to germinate well.

The Italian yielded well.

D.- Sugarcane.

The following demonstrations were carried on with sugargane crop :—

I. Trench and furrow system.

Versus—

II. Local method.
III. White tanna canes.
IV. Khari canes.

Versus—

V. Local canes.
VI. Ratooned canes of khari and tanna.

N. B.—Please see Appendix III for the Potash Syndicate's Experiment.

The following table will give the result of sugarcane demonstrated as noted above :—

1. System of cultivation. 2. Varieties. 3. Ratoon.	Outturn per acre.	Value of outturn.	Cost of cultivation.	Profit or loss.
	Mds. sr. ch.	Rs. A. P.	Rs. A.	Rs. A. P.
1. White tanna (Trench and Furrow System).	(1) 98 10 8	638 11 3	324 4	314 7 3
2. Local method ...	(2) 80 15 0	522 7 0	330 12	191 12 0
2. White tanna canes.	(3) 100 20 0	653 4 0	324 4	329 0 0
Khari canes ...	(4) 59 15 0	385 15 0	265 8	120 7 0
Local canes ...	(5) 40 20 0	263 4 0	329 10	*
3. Ratooned canes—				
Khari ...	(6) 48 35 8	317 12 3	221 4	96 8 3
White tanna	(7) 85 20 0	555 12 0	290 12	265 0 0
Local canes ...	(8) 46 15 0	301 7 0	295 8	5 15 0

* Local canes require special attention, hence the cost of cultivation exceeds that of Khari and White Tanna.

Note.—As most of the canes were made into cuttings, one cottah from each plot was harvested and the figures that were obtained are recorded in columns 3 and 5.

2. *Conservation of cowdung.*—The local cultivators are beginning to appreciate the system of protecting cowdung with cattle urine in a water-tight pit under shade.

The demonstration was made with paddy showing the superiority of the farm cowdung to that of raiyats :—

	Farm.	Raiyats.	
	Mds. sr.	Mds. sr.	
Grains	18 20	16 25	per acre.
Straw	35 0	29 0	

3. *Distribution of seeds.*—The farm endeavours to supply all demands made up on it for seeds and seed cuttings.

The following seeds were supplied during the year under report :—

		Mds.
A. Paddy—		
Varieties	Karticksal	6
	Jatakalma Karticksal	6
B. Jute—		
Variety Corchorus Capsularis ...		1
		No.
C. Sugarcane—		
White tanna		64,000
Khari		65,000
D. Dhaincha		¼ md.

4. *Practical training of Apprentices.*—Students receive practical training in this farm. There is want of accommodation. Two students received training during the year under report—one from April to November, and the other from November to March.

Management.—The expenses of the farm are borne by the Maharajadhiraj of Burdwan to whom thanks are given. The entire management is in the hands of the Agricultural Department, and Jogendra Ch. De was the Superintendent in charge of the farm throughout the year.

The Deputy Director of Agriculture, Bengal, inspected the farm frequently, and the Director of Agriculture visited the station once during the period under report.

JOGENDRA CH. DE.

Supdt., Burdwan Agricultural Station.

APPENDIX I.

Farm Accounts 1914-15.

RECEIPTS.

Particulars.	Amount.		
	Rs.	A.	P.
Grant from Burdwan Raj	2,500	0	0
Deposited into treasury as sale proceeds ...	1,386	0	3
Bills receivable	460	0	0
Stock in hand	79	3	0
Total ...	4,425	3	3
Balance carried forward ...	1,162	2	6

EXPENDITURE.

Particulars.	Amount. Rs. A. P	Amount. Rs. A. P.
Establishment—		
Superintendent's pay and travelling allowance.		629 8 0
Pay of apprentices		85 5 3
Capital—		
Construction and repairs (flood damaged).	276 8 6	
Implements	37 8 9	
Furniture	6 8 0	
Purchase of live-stock ..	100 0 0	
		420 9 3
Cattle food		106 11 6
Extra labour		2,136 10 9
Manures		118 2 6
Seeds		17 8 0
Office expenses		3 1 0
Contingencies		67 7 6
Stamps		12 0 0
Taxes and water-rate		57 8 0
Miscellaneous		29 2 3
Total		3,683 10 0

APPENDIX II.

Statement of crops grown and their outturn during the year 1914-15.

Serial No.	Crops.	Area in acre.	Outturn. Mds. sr. ch.	Outturn per acre. Mds. sr. ch.
1	Paddy	16·14	228 10 0	14 5 0
2	Jute fibre	3·	45 0 0	15 0 0
	„ seeds	0·8	4 0 0	5 0 0
3	Potatoes, Naini Tal	0·2	12 0 0	60 0 0
	Do. Italian	1·	186 28 0	186 28 0
4	Sugarcane, new	1·60	60 22 11	37 33 0
	Do. ratooned*	1·49	43 6 13	28 30 0

* The actual figure is noted. Most of the canes were made into cuttings.

APPENDIX III.

Results of Experiments made with Potash manures on Paddy, 1914-15

Manures.	Outturn per acre.	Value of outturn per acre.	Cost of cultivation per acre.	Profit per acre.
Paddy, variety Karticksal (Manure per plot mg : ·16 acre).— lbs.	Mds. srs. ch.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. Oilcake ... ... 40 Sulphate of ammonia ... 14 Super ... ... 28 Muriate of potash ... 10	Grain 20 32 13 Straw 38 mds.	61 8 9	43 13 6	17 11 3
2. Oilcake ... ... 40 Sulphate of ammonia ... 14 Super ... 28	Grain 20 14 1 Straw 35 mds.	59 10 0	41 14 3	17 11 9
3. No manure	Grain 10 20 0 Straw 16 4 0	30 4 4	17 10 1	12 10 3
4. Sulphate of ammonia ... 14 Muriate of potash ... 10	Grain 20 1 7 Straw 32 20 0	55 14 6	30 13 5	25 1 1

Sugarcane (variety White Tanna).

* Manure in ·20 plot— lbs.				
1. (*a*) New crop— Sulphate of ammonia ... 40 Super ... ... 36 Sulphate of potash ... 27	*Gur* Mds. sr. 102 10 0	664 10 0	350 5 0	314 5 0
(*b*) Sulphate of ammonia 40 Super. 36	98 25 0	641 1 0	331 8 0	309 9 0
2. Ratoon crop— (*a*) Sulphate of ammonia 40 Super ... ... 36 Sulphate of potash ... 27	82 15 0	535 7 0	296 10 0	238 13 0
(*b*) Sulphate of ammonia 40 Super 36	77 35 0	506 3 0	288 14 0	217 5 0

* Manures mentioned were applied in ½ acre plot manured with castor cake 9 mds. per acre.

Cropping Scheme of the Burdwan Farm, 1915-16.

I. Paddy.—(*a*) Aman (*b*) Aus.
II. Jute.—(*a*) Corchorus Capsularis. (*b*) Corchorus Olitorius.
III. Potatoes.
IV. Sugarcane.

I—PADDY.

I.—A. Demonstration.

(*1*) Seed selection of paddy ... 1

Varieties. Jatakalma—Karticksal ...
- I. Selected seeds (farm) ... 1
- II. Non-selected seed from Rajshahi ... ... ⅙
- III. Seed selection by water test (Japanese method)— 1
  - (1) C. P. fine aus ... ... ⅙
  - (2) Jatakalma—Karticksal ... ⅙
  - (3) Karticksal ... ... ⅙
  - (4) Bansmati ... ... ⅙
  - (5) Dadkhani ... ... ⅙
  - (6) Badshabhog ... ... ⅙

N. B.—These seeds will be kept for farm use (1916)

(2) Manurial Demonstration.

Jatakalma—Karticksal ... ... *versus* Ears.—Selection for seed supply ...	I.	(*a*) 60 mds. (farm cowdung) per acre	2
		versus no manure	1½
		(*b*) 60 mds. (farm cowdung) per acre ...	½
		Versus 60 mds. Raiyats... ...	2
	II.	Green manure with dhaincha ...	1½
		versus no manure	1½
	III.	Bonemeal. 3 mds. and saltpetre 1 md. per acre	3

(3) Method of cultivation Demonstration.

	(*a*) Treatment of 'aus' as aman paddy ..		⅓
	Versus aus growing in ordinary way ...		⅓
Variety. Basmati. 50 mds., cowdung per acre	(*b*) Plough demonstration	I. Meston ...	½
		II. Hindusthan	⅓
	Versus local		⅓
Jatakalma—Karticksal	(*c*) Rotation—Aman paddy after jute ...		2
	Manure—Cowdung 100 mds. Nitrate of soda 1 md.		per acre.

Paddy—

I.—B. Experiment (1) Variety, (2) Manure.

(1) (*a*) Early varieties	I.	C. P. fine aus	¼
	II.	Karticksal...	
	III.	Jatakalma-Karticksal ...	
(*b*) Later varieties	I.	Dadkhani	¼
	II.	Badshabhog	
	III.	Basmati	

(2) Manure per acre—

(*a*)	60 mds. cowdung	1½
(*b*)	Ditto 1 md. saltpetre	
(*c*)	Ditto 1 md. sulphate of ammonia	
(*d*)	Ditto 1 md. nitrate of soda	
(*e*)	Ditto 6 mds. castor-cake	
(*f*)	Bonemeal. 3 mds. and 1 md. nitrate of soda	
(*g*)	Ditto 1 md. saltpetre	
(*h*)	Ditto 1 md. sulphate of ammonia	
(*i*)	No manure	

II.—JUTE.

	(1) Low-lands—in rotation with paddy ...		1·98
Corchorus Capsularis	(*a*) Jute after collection of seed ...		·69
	(*b*) ,, before the formation of pods ...		
	(*c*) ,, before flowering		
	(2) High-Lands—in rotation with potatoes ...		1·20
Corchorus Olitorius	(*a*) Jute after collection of seed ...		
	(*b*) ,, before formation of pods ...		
	(*c*) ,, before flowering		
	(3) Finlow's : Jute		·48
	versus. Red Deshi (Corchorus Olitorius)		

Manure :—100 maunds cowdung and nitrate of soda 1 maund per acre.

III.—Potatoes.

(*a*)	Imported seeds of Darjeeling	·38
(*b*)	Ditto ditto Naini Tal	·33
(*c*)	Local Katni	·35
(*d*)	Do. Deshi *Thickra* of	·16

			Mds.	
Manures ... Half each	Cowdung		300	per acre.
	Super		3	
	Sulphate of ammonia ...		2	
Ditto ... Ditto ...	Cowdung		300	"
	Castor cake		21	

IV.—Sugarcane.

(1) *Demonstration (Ratooning).*

(*a*) Variety Java (White Tanna)	1·12
Ditto Khari	·39

(1) *Demonstration (b) New crops (Varieties recommended).*

I.—White Tanna	·68
II.—Khari	·34

versus.

Samshara and Puri (Local)	·17

(1) *Demonstration will also be carried on.*

Gur making system as well as seed cutting supply.

(2) *Experiment (Variety).*

(1) Java seedling, (2) White Tanna, (3) Yellow Tanna, (4) Striped Tanna, (5) Puri, (6) Red Mauritius, (7) Khari, (8) B. 147, (9) B. 3412, (10) B. 208, (11) Samshara, (12) Kajla, (13) Red Bombai, (14) Bansta, (15) Rani Bhola	·18

ABSTRACT.

I.—Paddy	19·83
II.—Jute	4·35
III.—Potatoes	1·22
IV.—Sugarcane—New	1·37
Ratoon	1·51
Total ...	28·28 acres.

JOGENDRA CH. DE.

Supdt., Agricultural Station, Burdwan.

Agricultural Exhibitions.

The following table gives details of all *melas* supported by this Department in the two Divisions of Western Bengal:—

Agricultural Exhibitions—1915.

Serial No.	NAME OF EXHIBITION.	Date.	Grant allowed.	What demonstrations given.	Name of officer who attended.
			Rs.		
1	Suri Cattle and Produce show.	30th January to 4th February 1915.	300	Irrigation by pumps and dons, gur-making and ploughing.	1st Deputy Director of Agriculture and Superintendent of Agriculture, Burdwan Division.

Serial No.	Name of Exhibition.	Date.	Grant allowed.	What demonstrations given.	Name of officer who attended.
			Rs.		
2	Banjetia Industrial and Agricultural Exhibition.	1st February 1915.	300	Irrigation by pumps and dons, gur-making and ploughing.	1st Deputy Director of Agriculture and Superintendent of Agriculture, Presidency Division.
3	Sekeddah *Mela* ...	7th to 13th January 1915.	Nil.	Seeds, manures and implements recommended by the Department.	Superintendent of Agriculture, Burdwan Division.
4	Meherpur Exhibition.	29th January to 4th. February 1915.	200	Irrigation by pumps, gur-making and ploughing.	1st Deputy Director of Agriculture and Superintendent, Seedstore.
5	Serampore Art and Agricultural Exhibition.	10th February 1915.	Nil.	Ditto, magic lantern.	Superintendent of Agriculture, Burdwan Division.

Ufra Work at Comilla.

An elaborate programme of work was arranged in connection with Ufra at the foot of the Lalmai Hills near Comilla. The essential points about this work were that land was chosen in the affected area and in such a situation that we could control the water-supply, *i.e.*, prevent the disease from being washed into our plots. It is hoped by this means that we can devise some remedy against the pest. Unfortunately the rainfall was so deficient that the crop on our plots either failed or partially failed, with the result that no definite results were obtained. In a normal year there is more water than is required, so no arrangements had been made for artificial irrigation. This work will be continued.

Demonstration Work.

Demonstration work in the Burdwan and Presidency Divisions is now being taken up more seriously. In a way this work has been in progress for the past ten years, but a study of all the work in the field and in office reveals how inadequate has been the supervision. In nearly every district there are a few earnest persons who only require the requisite advice to do some piece of work.

F. Smith.

Deputy Director of Agriculture, Bengal.

Central Seed Store, Sibpur.

This store remained the chief source of supply for the whole Province during the larger part of the period under review.

With the exception of potatoes, which were supplied chiefly from Darjeeling and from a separate fund, most seeds, manures and implements were sent out from Sibpur.

Towards the end of the year separate seed stores were opened in each division under the respective Superintendents of Agriculture, and Sibpur became the seed store for the Burdwan Division. Since then, however, a new seed store for the Burdwan Division has been opened in the neighbourhood of the Howrah Station.

The following seeds, manures and implements were distributed from Sibpur during the year:—

	Mds.	
Seeds	464¾	
Potatoes	120	
Manures	1,152¼	chiefly bonemeal.
Implements	29	

The following expenditure and receipts were made during the period under review:—

Receipts.	Rs.	A.	P.
Remitted to treasury	3,060	12	0
Bills outstanding ...	2,468	4	9
Total ...	5,529	0	9

Expenditure.	Rs.	A.	P.
Seeds, manures and implements ...	5,109	2	0
Office contingencies	778	14	0
Establishment ...	2,249	1	4
Total ...	8,137	1	4

Mr. D. N. Mittra had charge from July, 1st, to October, 22nd, when Mr. P. G. Krishnan took control, until the seed store was made over to the Superintendent of Agriculture for the Burdwan Division.

F. SMITH.

Deputy Director of Agriculture, Bengal.

From the following data of officers with the dates of appointment we cannot expect much in the way of results from demonstration work in 1914-15, but next year something more definite should be forthcoming:—

Mr. H. P. Mitter, Superintendent of Agriculture, Presidency Division ... 21st August 1914.
Mr. J. N. Sircar, Superintendent of Agriculture, Burdwan Division ... 24th June 1914.
Babu Sachindra Krishna Dutt, District Agricultural Officer, Presidency Division ... 18th March 1915.
Mr. P. G. Krishnan, District Agricultural Officer, Midnapore ... ... 15th May 1915.
Babu Hara Kumar Guha, District Agricultural Officer, Burdwan ... ... 6th January 1915.

Below, I give the Annual Report of each Superintendent of Agriculture:—

F. SMITH.

Deputy Director of Agriculture, Bengal.

Calcutta, the 29th July 1915.

From—The Superintendent of Agriculture, Presidency Division,
To—The Director of Agriculture, Bengal, (through the 1st Deputy Director of Agriculture, Bengal).

ANNUAL REPORT OF THE SUPERINTENDENT OF AGRICULTURE, PRESIDENCY DIVISION, FOR 1914-15.

This report deals with the period from 1st July 1914 to 30th June 1915.

I spent 121 days on tour, out of which 12 days were spent outside the Division and the remaining 109 days in the five districts of the Division as follows :—

24-Parganas	... 17 days.	Murshidabad	... 39 days.
Jessore ...	... 32 ,,	Rangpur-Dacca	... 8 ,,
Khulna	... 2 ,,	Chinsura	... 4 ,,
Nadia ...	... 19 ,,		

During the year under report I had to work single-handed till March 1915, when the services of Babu Sachindra Krishna Dutt, travelling inspector, were placed at my disposal. I had four demonstrators only till March, when three more joined me. Thus at present I have got one inspector and seven demonstrators to help me.

In the several agricultural associations in this Division the members with a few exceptions did not do any useful work. The results obtained such as they were are annexed herewith.

Exhibitions.—Exhibitions took place in the following places :—

(*i*) Banjetia	...	1st to 7th February 1915.
(*ii*) Keserpahar	...	30th January 1915.
(*iii*) Meherpur	...	29th January to 4th February 1915.

Demonstrations in *gûr*-making and in the use of the chain pump and *dône* were given during the show.

Annexed herewith is a list of demonstration plots started this year.

Seed store.—For the convenience of the public a seed-store has been opened since at 27, Upper Circular Road, Calcutta (opposite Sealdah Railway Station), where seeds, manures and implements are stocked. The following have been distributed from the seed-store :—

	Mds.	s.		Mds.	s.
Bonemeal	... 82	10	Superphosphate	... 0	26
Dhaincha	... 2	20	Chili saltpetre	... 0	25
Wheat ...	... 1	1	Sulphate of ammonia	0	10
Rahar seed	... 0	3	Sulphate of potash	... 0	1½
Groundnut	... 0	15			

Results of demonstration work carried out by members of Agricultural Associations in 1914-15.

Name.	Address.	Nature of demonstration.	Area.	Outturn per acre.
Babu Surendra Nath Ghose	Rajibpur (24-Parganas).	Introduction of Patna potato.	7½ cottahs	186 maunds.
		Introduction of Australian potato.	2½ ,,	168 ,,
		Effect of bonemeal on *aman* paddy (Benaphul).	2½ bighas	25 ,,
		Unmanured plot ...	2 ,,	16 ,,
,, Raman Krishna Dutt	Chandipur, Kagdwip (24-Parganas).	Introduction of Darjeeling potato.	10 cottahs	120 ,,
,, Jitendra Nath Bose	Jamalpur (24-Parganas).	Effect of green manuring with dhaincha on *aman* (Patna) paddy.	10 ,,	24 ,,
		100 maunds of cowdung on *aman* paddy.	10 ,,	18 ,,
		Samudrabali paddy. Effect of bonemeal with saltpetre.	12 ,,	30 ,,
		Dhaincha	12 ,,	25½ ,,
		Patna potato	10 ,,	195 ,,
,, Sukumar Adhikary ...	Murshidabad ...	Darjeeling potato ...	2 ,,	140 ,,
,, Debendra N. Mukherji	Ditto ...	Tank silt 20 maunds per bigha on gram.	1 bigha	13 ,,
		Without manure ...	1 ,,	10 ,,
,, Prasanna Nath De ...	Kasimbazar ...	Introduction of Mauritius sugarcane.	15 cottahs	2,400 canes per bigha.
,, Rash Behari Dutt ...	Choto Jagulia (24-Parganas).	Introduction of Darjeeling potatoes.	22 cottahs	240 maunds.*

* Manured with preserved cowdung in pits and castor-cake.

List of demonstrations started in 1915 the results of which will be noted in next year's report.

1.	Babu Surendra Nath Ghosh.	Rajibpur (24-Parganas).	Effect of bonemeal on *aus* paddy. Effect of castor-cake on *aus* paddy. Effect of bonemeal on *aman* paddy. Effect of castor-cake on *aman* paddy. Effect of castor-cake on jute. Effect of Chili saltpetre and superphosphate on jute. Introduction of Mr. Finlow's jute. Introduction of groundnut.
2.	Babu Jitendra Nath Bose.	Jamalpur (24-Parganas).	Same as that of Babu Surendra Nath Ghosh.
3.	Babu Tarakdas Banerji.	Ghoshpur (24-Parganas.).	Ditto.
4.	Babu Surendra Nath Ghosh.	Murrel, Jessore ...	Ditto.
5.	Mr. E. G. McLeod ...	Kotchandpur, Jessore.	Ditto and green manuring with dhaincha on *aman* paddy.
6.	Babu Joyhari Bose ...	Damurhuda, Nadia	Same as that of Mr. E. G. McLeod.
7.	Babu Ramanath Rai	Hardi, Nadia ...	Ditto.
8.	Maulvi Jairuddin Biswas.	Chuadanga ...	Effect of bonemeal on *aus* paddy.
9.	Babu Harendra Nath Ballav.	Dhankuria (24-Parganas).	Effect of bonemeal and dhaincha on *aman* paddy.
10.	Babu Bhutnath Safai	Kalyanpur (24-Parganas).	Ditto.
11.	Babu Krishnapada Maitra.	Malancha (24-Parganas).	Ditto.
12.	Babu Tarini Charan Naskar.	Budge-Budge ...	Effect of bonemeal on *aman* paddy.
13.	Babu Trailakhya Nath Chatterji.	Ghathbog, Khulna	Ditto.
14.	Babu Bhutnath Laskar.	Champahati (24-Parganas).	Ditto.
15.	Babu Sasi Bhusan Rai	Jangipur (Murshidabad).	Ditto.
16.	Babu Mohendra Narain Chowdhry.	Nimtila (Murshidabad).	Ditto.
17.	Babu Nilmani Bhattacharya.	Berhampur ...	Effect of bonemeal on *aman* paddy and introduction of sugarcane (B. 147).
18.	Babu Prasanna Nath De.	Kasimbazar ...	Bonemeal and sugarcane (B. 147).

Seed rates of principal crops in Presidency Division.

		Per acre.
Aus paddy	Broadcasted ...	30 seers.
	Transplanted ...	20 ,,
Aman paddy	Broadcasted ...	30 ,,
	Transplanted ...	20 ,,
Boro paddy—Transplanted	...	25 ,,
Jute	...	4½ ,,
Mesta (Deccan hemp)	...	4½ ,,
Wheat	...	1 maund.
Khesari or Teora	...	20 seers.
Gram	...	1 maund.
Lentils	...	25 seers.
Mung	...	10 ,,
Mashkalai (urid)	...	5 ,,
Arhar	...	6 ,,
Gingelly	...	10 ,,
Linseed	...	10 ,,
Niger (Surguja)	...	20 ,,
Rape, mustard	...	5 ,,
Sunn-hemp	...	1 maund.
Tobacco	...	1 ounce.
Chillies	...	1 seer.

H. P. MITRA.

Supdt. of Agriculture, Presidency Division.

Dated Chinsura, the 6th July 1915.

From—The Superintendent of Agriculture, Burdwan Division,
To—The Director of Agriculture, Bengal (through the 1st Deputy Director of Agriculture, Bengal).

ANNUAL REPORT OF THE SUPERINTENDENT OF AGRICULTURE, BURDWAN DIVISION, 1914-15.

Staff.—Formerly there was an Inspector for this Division; and his main duty was to keep connection in matters agricultural with various Agricultural Associations and their members in the Division. He used to see the members and tried to carry out demonstration work in the lands of a few who took special interest in it.

Since 24th June 1914, there is no longer any Inspector. A Superintendent has been appointed for the Division and the nature of his duty is changed to a considerable extent. Demonstration work is being carried out as in East Bengal in the plots of raiyats whether he is a member or not.

Three Demonstrators were appointed at the beginning and two at the end of the year under report. Since the middle of the year I received a District Agricultural Officer with head-quarters at Burdwan. In may last I received another District Agricultural Officer with his head-quarters at Midnapore.

Agricultural Associations.—There are one Divisional and five District Agricultural Associations in the Division. With the exception of Howrah, every district of the Division has got an Association. The Divisional Commissioner is the President of the Divisional Association, and the Collectors of Districts are Presidents of their respective District Associations. Besides the above six Associations, there are three branch Agricultural Associations at Rampurhat, Katwa, and Contai. Every Association has generally got 20—30 members.

There were altogether 20 meetings of the Associations in the year under report; I could attend 18 of them. It was not possible for me to attend the remaining two as they clashed with other two meetings.

Exhibitions and Fairs.—There were altogether six exhibitions and fairs in the year. I attended all of them. The Suri and Burdwan Exhibitions

proved to be the best of their kind in the Division. The Suri Exhibition lasted for six days and the Burdwan one for three days. In both the exhibitions departmental seeds, manures, tools, etc. were exhibited; lectures and lantern lectures were delivered; and demonstration on improved implements were shown. I beg to take the opportunity here to thank Babu Jogendra Charan De, Superintendent of the Burdwan Farm, who assisted me in arranging the Burdwan Exhibition.

The Burdwan Exhibition was arranged under the auspicies of the Bengal Literary and Scientific Conference. The other exhibitions and fairs were held at Hetempur and Sekedda (Birbhum), Mahata (Burdwan) and Serampore (Hooghly).

Demonstration Work.—I was out on tour for 241 days in the year under report for Departmental work—specially for demonstration work.

There was practically no officer in charge of agricultural work in this division from April to June 1914, and this period is the important time for arranging demonstration work, consequently there is scarcely any important demonstration work in the first half of the year which can be mentioned here with definite result. But in the latter half, vigorous attempt was made to make demonstration work popular among the people. I am glad to report that our success is rather splendid in this respect. Our appeal was responded to promptly by many.

The works undertaken in various districts of the Division are—

(1) Bonemeal on paddy.
(2) Castor cake on paddy.
(3) Green manuring with dhaincha.
(4) Introduction of groundnut.
(5) Introduction of superior varieties of sugarcanes.
(6) Introduction of superior varieties of potatoes.
(7) Introduction of Kakya Bombai jute.
(8) Conservation of cowdung.
(9) Introduction of Meston plough, Planet Junior Hand Hoe, Chain-pump and done.

Bonemeal.—The people seem to be very conservative; but yet about 500 maunds of bonemeal have been distributed under my supervision among rayats for the cultivation of paddy in nearly 500 bighas of land. It is an important rice-growing division, and the transplanting process is prevalent everywhere.

Castor Cake.—The application of castor cake is not a new practice at all in this division. It is a general manure here for the cultivation of potato and sugarcane. In many places cultivators apply 30 maunds of castor cake to an acre. But this year we are trying to see its effect on paddy. Nearly 125 maunds have been distributed, and this will suffice for 100 bighas.

Green Manuring with Dhaincha.—It is appreciated by the people of this division so much that the total stock of over 45 maunds of seeds, sufficient for manuring 700 bighas, have been exhausted in a very short period. The seeds have been arranged for sowing under our supervision.

Sugarcane.—It is an important crop of this division. There are seven local varieties. It was proved by demonstration work in the Burdwan farm as well as in the private farms of Babus Raghunath Banerjee and Basanta Kumar Mitter that foreign cane specially "tanna" did excellently well in the soil of this division. A good many people were eager to introduce this foreign cane in their lands. All the cuttings available of this variety and cuttings of some other varieties as well, aggregating about 1,00,000 (one lac) have been distributed by us. They have been planted according to our instruction and they are doing well.

Potato.—It is rather everybody's field crop now-a-days in this division. Serampore subdivision may be mentioned as the centre of potato growing tract. Sheoraphuli bazar can supply in any *hât* day in the season thousands of maunds of locally grown potatoes. Patnai, Naini Tal, Cawnpuri and Darjeeling potatoes are generally grown. Italian and English seeds have also been tried this year.

Owing to scarcity of rain in the autumn—the proper season of potato-cultivation—the outturn per acre could scarcely be found exceeding 240 maunds.

Jute.—Olitorius variety of jute is generally grown in this division. Capsularis is also being favourably received by the raiyats now-a-days. We are trying it this year in our demonstration plots in the districts of Hooghly and Burdwan.

Conservation of Cowdung.—Many people of this division understand the utility of conserved cowdung. In hundreds of places I personally noticed that cowdung was scientifically reserved in pits under trees. It is rather becoming a common practice among the cultivators of all the districts of this division.

Meston Plough and Planet Junior Hand Hoe.—They do not work satisfactorily in the hard soil of Birbhum and Bankura; but they are being favourably received for their application in alluvial and sandy soil of the the Damodar valleys.

Done.—It is proved to be the best and most popular apparatus for irrigating land where the water-level is not lower than 8 or 10 feet. Chain pump is also being introduced among the agriculturists. The Raja of Narajole (Midnapore) has installed two bullock-gear-double-chain-pumps in his two demonstration farms this year. They are working quite satisfactorily.

Disease.—Paddy, jute and cocoanut disease was noticed in the year under report. Possible steps were taken by the Department. The Entomological and Mycological Collectors from Dacca came to investigate the paddy disease; and assistants to the Imperial Entomologist came down to Uttarpara and Serampere to take specimens and examine the cocoanut disease. The insect pest of jute was stopped by the common practice of drawing a string, dipped into kerosene, over the crop several times.

Private Farms.—Among the private farms inspected by me, the following are noteworthy:—

1. Raja of Narajole's Farm (Midnapore).
2. Babu Basanta Kumar Mitter's Farm, Panesheola (Hooghly).
3. Babu Satyendra Ch. Mitter's Farm, Bahara (Burdwan).
4. K. B. Moulvi Samsuzzaha's Farm, Sekedda (Birbhum).
5. Babu Rajaram Mitter's Farm, Gangajalghati (Bankura).

Owing to drought in autumn, the result of demonstration work was not so satisfactory in the year under report. The result of a few, which were to some extent successful, is given in Appendix I.

The list of persons who have earnestly commenced demonstration work in more than 5 bighas each, under our supervision is given in Appendix II. The main crops being tried in their plots are paddy with bonemeal and dhaincha green manuring, potato and sugarcane with castor cake, conserved cowdung and tank silt, and groundnut without any manure.

J. N. SIRKAR,

Supdt. of Agriculture, Burdwan Division.

APPENDIX I.

Serial No.	Nameof persons in whose land demonstration work is carried out.	NAME OF CROP.	Manure used per acre.	Outturn per acre.
				Ms. srs.
1	Babu Rama Prasanna Mukerjee, Kundala.	Naini Tal potato	150 maunds cowdung and 12 maunds castor cake.	240 0
2	„ Mahendra Baul, Baruipara.	Ditto „ ...	18 maunds castor cake and 150 maunds cowdung.	231 0
3	„ Rama Prasanna Mukerjee, Kundala.	Patnai „ ...	150 maunds cowdung and 12 maunds castor cake.	220 0
4	„ Raghu Nath Banerjee, Kalikapur.	Italian „ ...	12 maunds mustard cake and 180 maunds cowdung.	191 10
5	„ Hari Charan Pal, Bale.	Patnai „ ...	120 maunds cowdung and 15 maunds castor cake.	181 20
6	Munshi Baherjan, Joykristopur.	„ „ ...	24 maunds castor cake ...	180 15

APPENDIX I—*concluded.*

Serial No.	Name of persons in whose land demonstration work is carried out.	Name of Crop.	Manure used per acre.	Outturn per acre.
				Ms. srs.
7	Babu Nitya Gopal Singh, Debipur.	Patnai potato	21 maunds castor cake ...	180 0
8	„ Anukul Ch. Saha, Debipur.	„ „ ...	20 „ „ „ ...	176 24
9	„ Hari Charan Pal, Bale.	Naini Tal „ ...	75 maunds cowdung and 18 maunds castor cake.	175 14
10	„ Bhutnath Ghose, Ajhapur.	Patnai „ ...	18 maunds 30 seers castor cake.	157 20
11	„ Raghunath Banerjee, Kalikapur.	„ „ ...	6 maunds mustard cake and 180 maunds cowdung.	147 36
12	„ Radhanath Mandal, Churulia.	„ „ ...	200 maunds cowdung ...	150 21
13	„ Raghu Nath Banerjee, Kalikapur.	Sugarcane Tanna	150 maunds cowdung and 10 maunds castor cake.	90 0*
14	„ Ditto ditto ...	„ Khari ...	Ditto ditto ...	60 0*
15	„ Bhutnath Ghosh, Ajhapur.	„ „ ...	100 maunds cowdung, 18 maunds castor cake and 1 maund 32 seers lime.	55 32
16	„ Rama Prasanna Mukerjee, Kundala.	Dadkhani paddy	225 maunds cowdung ...	35 0
17	Dr. Probodh Ch. Chatterji, Dhatrigram.	Aman „	3 „ mustard cake ...	31 20
18	Babu Bhutnath Ghose, Ajhapur.	Dhadkhani „	150 „ cowdung ...	22 20

* Gur.

APPENDIX II.

Serial No.	Name.	Village.	District.
1	Babu Basanta K. Mitter ...	Panesheola ...	Hooghly.
2	„ Abhoyapada Mukerjie ...	Sheakhala ...	Ditto.
3	R. B. Bijoynarain Kundu ...	Itachuna ...	Ditto.
4	Babu Sriram Ch. Bose ...	Boso ...	Ditto.
5	„ Mahendra Baul ...	Baruipara ...	Ditto.
6	„ Bipin Behari Sasmal ...	Contai ...	Midnapur.
7	„ Rampada Chatterjee ...	Do. ...	Ditto.
8	Raja of Narajole	Narajole ...	Ditto.
9	Rai Lalit Mohan Singh Rai Bahadur.	Chakdighi ...	Burdwan.
10	Babu Bhutnath Ghose ...	Ajhapur ...	Ditto.
11	„ Nitya Gopal Singh ...	Debipur ...	Ditto.
12	„ Anukul Ch. Saha ...	Baledanga ...	Ditto.
13	„ Amrita Lall Shil ...	Satgachia ...	Ditto.
14	Dr. Prabodh Ch. Chatterjee ...	Dhatrigram ...	Burdwan.
15	Babu Purna Ch. Mazumdar ...	Amlazora ...	Ditto.
16	Munshi Khoda Neaz ...	Churulia ...	Ditto.
17	Khan Bahadur Maulvi Samsuzzoha	Sekedda ...	Birbhum.
18	Babu Rama Prasanna Mukerjee	Kundala ...	Ditto.
19	Dr. K. D. Sircar	Nalhati ...	Ditto.
20	Munshi Baherjan	Joykristopur ...	Ditto.
21	„ Alahadad	Shahpur ...	Ditto
22	Babu Bhairab Ch. Banerjee ...	Purandarpur ...	Ditto.
23	Maharajkumar S. N. Chakervatty	Hatempur ...	Ditto.

APPENDIX II—*concluded.*

Serial No.	Name.	Village.	District.
24	Babu Raghunath Banerjee ...	Kalikapur ...	Bankura.
25	„ Harinath Banerjee ...	Ditto ...	Ditto.
26	„ Kali Nath Chatterjee ...	Palashdanga ...	Ditto.
27	Kumar R. N. Chandradhanga ...	Maliara ...	Ditto.
28	Babu Rajaram Mitter ...	Gangajalghati ...	Ditto.
29	Munshi Meherulla	Ashuria ...	Ditto.
30	Babu Banwari Lal Sircar ...	Ditto ...	Ditto.
31	„ Judhisthir Nandy ...	Patpur ...	Ditto.
32	„ Jatindra Nath Bhui ...	Taldangra ...	Ditto.
33	„ Rasik Behari Biswas ...	Vishnupur ...	Ditto

J. N. Sirkar.

Supdt. of Agriculture, Burdwan Division.

Seed Rates of Principal Crops in the Burdwan Division.

		Per acre.
1.	Paddy	12—16 seers when transplanted. 9—12 seers when broad cast.
2.	Potato	10—15 mds.
3.	Jute	3 seers.
4.	Sugar-cane ...	12,000—16,000 cuttings.
5.	Kalai	25 seers.
6.	Mustard	5 ..
7.	Wheat	20 ..
8.	Gram	30 ..
9.	Lentil	20 ..
10.	Ground-nut ...	30 ..
11.	Til	4 ..

J. N. Sirkar.

Supdt. of Agriculture, Burdwan Division.

No. 1075R-4, dated Dacca, the 15th July 1915.

From—K. McLean, Esq., B.Sc., 2nd Deputy Director of Agriculture, Bengal.
To—The Director of Agriculture, Bengal.

In submitting the Annual Reports for the Eastern Circle, I beg to draw your attention to the economic value of the experimental and demonstration works carried out.

The results of the application of bonemeal on the red soil are again conclusive, and it appears to me that sufficient information has been obtained to justify its application on an extended scale.

Land in the Madhupur jungle tract extending to about 500,000 acres would produce good crops if a reclamation scheme were taken in hand. The average yield of paddy on this soil 12 maunds per acre has been raised to 21 maunds ; the cultivator increasing his income from Rs. 36 to Rs. 63, whilst incurring an expenditure of only Rs. 9. If the whole of this tract had been

under paddy, this would mean an additional net income of some Rs. 10,000,000. It will be seen that the opening up of this tract will certainly repay the capital expenditure. There is a quantity of valuable timber at present throughout the tract.

The introduction of potato cultivation is an important demonstration economically.

Certain defined areas are becoming evident as peculiarly suited to this crop and yields as high as 10 tons per acre have been obtained.

The crop has filled a decided want in these areas where the cultivators find that they obtain good returns during a season which produced very little in the past.

The area along the banks of the Meghna river has given the heaviest yields of potatoes, and the cultivators have found the crop most profitable.

The introduction of new varieties of sugarcane is also of high economic importance, and the cultivators are very anxious to obtain cuttings.

The details of the working of the various Farms and Reports of the Divisional Superintendents and the Superintendent, Rangpur district I now beg to submit herewith.

I took over charge of the Eastern Circle from Mr. Smith, 1st Deputy Director of Agriculture, on the 29th January 1915, and since that time I have been 99 days on tour.

KENNETH McLEAN,

2nd Deputy Director of Agriculture Bengal.

ANNUAL REPORT OF THE DACCA CENTRAL EXPERIMENTAL STATION FOR THE YEAR 1914-15.

THE Dacca Central Experimental Station is situated five miles north of Dacca Railway Station near the village Manipur.

The land was acquired by the Eastern Bengal and Assam Government in 1906. The highland area is intersected by ravines which are suited for Aman paddy. Unfortunately owing to the narrowness of these ravines and the ensuing "wash" their fertility is very uneven and makes experimental work difficult.

The highland soil is typical of the laterite tract known as the Madhupur jungle. In dry weather it becomes uncultivatable, setting like brick, but a few showers of rain loosen the soil, and cultivating operations have to be accelerated to get over the land whilst it is in this condition.

With country ploughs this was impossible owing to the limited supply of bullocks. The Turn Wrest ploughs although they do three times the area covered with a country plough require two pairs of bullocks, so the advantage gained is limited. Panjab ploughs have now been introduced, they can easily do three times the work of the country plough, ploughing 6" deep with one pair of bullocks and one man.

The same difficulties arose in the succeeding cultivations which were also done with the country plough. The five tined Spring Toothed Harrow has obviated this prolonged period of cultivation.

The land became very dirty but there is a tremendous improvement due to these implements and to the ordinary zigzag harrow which has also been introduced this year.

Labour conditions in Eastern Bengal are exceptional, raiyats paying as high as Re. 1-8 per day to up-country men to weed their jute. When the labour value is compared with American and European labour it will be seen that the problem of reducing expenses by the introduction of improved implements is as important in Eastern Bengal as it is there.

The Farm Mistries have constructed a paddy seed drill which is promising and being made out of local materials is inexpensive.

The results of this year's working will give a comparison between drilled and broadcasted aus paddy.

The Meston plough has been widely distributed throughout the province and experiments are now being carried out on this Farm to make it into a more useful implement.

A "Small Holding" Thrasher has been purchased but it has not yet been tested. The Farm Mistries will be able to carry out any improvements on the machine, as they become evident.

One of the most expensive items is the cost of jungle clearing and in the current year experiments will be tried in utilizing the roadsides for cropping. In this way it is hoped that some return will be obtained for the outlay which at present is non-productive.

Some 25 acres of jungle land will be brought under cultivation this year. The Burra Tak area is one of the richest on the Farm and with liming should give very good crops.

Definite areas are now allocated to each Overseer. Previously there was a tendency to avoid responsibility as each item of cultivation was carried out under different supervision.

At present there is no drainage system of any material value. It is contemplated during the current year to have the whole Farm properly drained. Owing to the numerous bydes or ravines a drainage scheme will not be costly.

Area and general features—

High-land	...	283	acres
Low-land	...	70·7	,,
		353·7	,,

One hundred and forty-one acres of the high-land were under cultivation during the year under report, the remainder being allocated to roads, buildings, Botanical area, mangoe groves, tanks, and jungle. All the low-land is cultivated.

Irrigation.—The potato crop is the only one which is irrigated.

Rainfall.—The following table indicated the rainfall returns in comparison with the normal :—

Name of months.	Number of rainy days.	Rainfall at farm, in inches.	Normal in Sadar.	
			Rainfall in inches.	Days.
April 1914 ...	18	8·73	4·88	6·7
May ,, ...	13	15·05	9·6	11·3
June ,, ...	16	4·32	13·38	15·2
July ,, ...	27	15·75	12·85	17·5
August ,, ...	23	11·33	12·53	17·40
September ,, ...	13	7·96	9·43	11·70
October ,, ...	4	2·27	*Nil*	*Nil*
November ,, ...	*Nil*	*Nil*	,,	,,
December ,, ...	3	1·27	,,	,,
January 1915 ...	3	0·56	,,	,,
February ,, ...	1	1·23	1·12	1·8
March ,, ...	2	0·22	2·59	3·5

The maximum and minimum temparature as recorded in the farm are as follows:—

Name of months.	Office.		Verandah.		Godown.	
	Maximum.	Minimum	Maximum.	Minimum.	Maximum.	Minimum.
April 1914 ...	89·10	74·43	72·43	56·50	91·70	78·30
May ,, ...	90·60	80·10	92·70	77·22	94·00	77·37
June ,, ...	91·33	82·20	93·43	79·53	95·00	79·63
July ,, ...	88·32	82·09	88·77	79·61	91·29	80·32
August ,, ...	89·48	84·00	89·48	80·16	83·09	80·19
September ,, ...	90·76	81·86	91·70	79·33	91·13	79·00
October ,, ...	95·25	76·55	93·85	72·48	91·81	72·14
November ,, ...	87·90	69·73	89·03	64·83	89·23	64·83
December ,, ...	82·61	63·13	66·00	59·26	83·51	59·42
January 1915 ...	81·32	63·09	82·67	59·19	80·71	57·58
February ,, ...	80·07	58·71	79·82	58·50	79·13	58·13
March ,, ...	93·45	60·97	93·87	62·97	101·55	63·51

Farm operations.—These are divided into the following heads:—

1. Experimental cultivation.
2. Non-experimental cultivation.
3. Reclamation.
4. Construction and petty repairs.
5. Distribution of seeds.
6. Poultry keeping.
7. Training of apprentices.

Experimental operations.—Mr. Birt's high-land improvement experiment in north Hazi.

There are four blocks each one acre in extent. The size of each plot is $\frac{1}{4}$ acre and that of sub plots $\frac{1}{16}$ acre.

The manuring is as follows:—

Plot No. 1 ... No manure.
,, No. 2 ... Slaked lime 10 mds. per acre.
,, No. 3 ... Slaked lime 50 mds. per acre applied in 1911, 1914, 1917.
,, No. 4 ... Slaked lime 60 mds. per acre applied in 1911 and 1917.

Cross-dressing—

Section *a* ... No manure.
,, *b* ... Bonemeal 3 mds. per acre.
,, *c* ... 3 mds. bonemeal per acre and 100 mds. cowdung.
,, *d* .. Cowdung 100 mds. per acre annually.

CROPPING FOR FIRST SIX YEARS.

Blocks A and D.

		Kharif.	Rabi.
1st year	1911	Dhaincha green manure	Mustard.
2nd „	1912	Aus paddy	Matikalai.
3rd „	1913	Dhaincha green manure	Mustard.
4th „	1914	Aus paddy	Matikalai.
5th „	1915	Dhaincha green manure	Mustard.
6th „	1916	Aus paddy	Matikalai.

BLOCKS B AND C.

		Kharif.	Rabi.
1st year	1911	Aus paddy	Mustard.
2nd „	1912	Ditto	Matikalai.
3rd „	1913	Ditto	Mustard.
4th „	1914	Ditto	Matikalai.
5th „	1915	Ditto	Mustard.
6th „	1916	Ditto	Matikalai.

The results obtained in 1914-15 are shown in the attached plan.

Mr. Basu's high land improvement experiment by green-manuring and liming, etc.

The results obtained are as follows :—

In the year 1914-15 the western half of the plot was manured with bonemeal, and the eastern half was left unmanured.

Serial No.	Bonemeal manured or unmanured.	Name of crops with variety.	Area in acres	Actual outturn.			Outturn per acre.		
				Mds.	srs.	ch.	Mds.	srs.	ch.
1	Manured ...	Plot No. 2A Aus paddy (larcose).	·25	2	5	0	8	20	0
2	Ditto ...	Do. 1A Ditto	·25	1	22	0	6	8	0
3	Ditto ...	Do. 2B Ditto	·25	3	21	8	14	6	0
4	Ditto ...	Do. 1B Ditto	·25	4	9	8	16	38	0
5	Ditto ...	Do. 2C Ditto	·25	3	36	0	15	24	0
6	Ditto ...	Do. 1C Ditto	·25	2	29	0	10	36	0
7	Ditto ...	Do. 2D Ditto	·25	2	18	0	9	32	0
8	Ditto ...	Do. 1D Ditto	·25	1	29	12	6	39	0
9	Unmanured	Do. 2A Ditto	·25	1	10	0	5	0	0
10	Ditto ...	Do. 1A Ditto	·25	1	21	8	6	6	0
11	Ditto ...	Do. 2B Ditto	·25	3	19	0	13	36	0
12	Ditto ...	Do. 1B Ditto	·25	3	31	0	15	4	0
13	Ditto ...	Do. 2C Ditto	·25	3	13	4	13	13	0
14	Ditto ...	Do. 1C Ditto	·25	2	35	0	11	20	0
15	Ditto ...	Do. 2D Ditto	·25	1	27	4	6	29	0
16	Ditto ...	Do. 1D Ditto	·25	2	23	0	10	12	0

The following experiments were done in connection with aus paddy.

1. *Variety.*—Varieties—Pooki; Larcose; Gorfa; Surjamukhi.—The following results were obtained :—

Serial No.	Name of variety.	Reference number of maps.	Area in acres.	Actual outturn.	Outturn per acre.
				Mds. srs. ch.	Mds. srs. ch.
1	Pooki ...	S. Hazi ...	2	26 23 8	13 11 12
2	Larcose ...	Do. ...	2	40 30 8	20 15 4
3	Gorfa ...	Do. ...	2	32 39 12	16 19 14
4	Surjamukhi ...	Do. ...	2	37 25 4	18 32 10

2. *Manurial.*—Varieties—Larcose. Each plot was separated by a check plot and the following results have been obtained :—

Serial No.	Manure applied.	Number of plot.	Area in acres of plot.	Actual outturn—average of duplicates.	Outturn per acre.
				Mds. srs. ch.	Mds. srs. ch.
1	Nil ...	3/a, 5/a, 3/b, 4/b, 5/b, 6/b, 3/d, 4/d, 5/d, 6/d.	⅛ acre each	3 3 7⅜	15 17 5 (average ten plots).
2	Cowdung 50 maunds per acre.	3/c, 5/c.	Ditto	3 28 2	18 20 10
3	Bonemeal 3 maunds per acre.	3/c, 5/c,	Ditto	4 20 2	22 20 10
4	Cowdung 50 maunds and Bonemeal 3 maunds per acre.	4/a, 6/a	Ditto	4 5 2	20 25 10
5	Cowdung 50 maunds. Bonemeal 3 maunds. Lime 5 maunds per acre.	4/c, 6/c	Ditto	4 5 14	20 29 6
6	Cowdung 50 maunds and Lime 5 maunds per acre.	4/c, 6/c	Ditto	3 18 12	17 13 12

The following experiments on the methods of cultivation were conducted :—

(A) On seed rate :—Variety—Surjamukhi aus paddy.

The result is as follows :—Seed was broad-casted.

Serial. No.	Kind of seed raised.	Seed rate per acre.	Area in acres.	Actual outturn.	Outturn per acre.
				Mds. srs. ch.	Mds. srs. ch.
1	Seed that sinks in saturated solution of salt.	½ md.	1	13 12 8	13 12 8
2	Ditto ...	1 „	1	18 20 4	18 20 4

(B) Rotation experiment :—

(*i*) In low-land—

(*a*) Aus followed by aman ...	Bonemeal ...	3 maunds.
(*b*) Jute „ „ „ ...	Ditto ...	3 „
	Lime ...	3 „
(*c*) „ „ „ „ ...	Cowdung ...	100 „

(*ii*) In high-land—

(*a*) *Aus* followed by niger.
(*b*) „ „ „ til.
(*c*) „ „ „ matikalai.
(*d*) „ „ „ mustard.
(*e*) „ . „ matikalai.

Matikalai green manure and then mustard.

The results of the above experiment are given below in a tabular form—

Serial No.	Reference number of maps.	Area of the plot—nature of experiment in acre.	Kind of crop.	Actual outturn.	Outturn per acre.
1	Shunti Low 14, 18, 20.	1 Aus followed by aman ...	Aus ...	6-37-0	6-37-0
			Aman (malati).	18-7-8	18-7-8
2	Shunti Low 15, 19, 20.	1 Jute followed by aman ...	Jute ...	ploughed up	
			Aman ...	20-18-0	20-18-0
3	Mastul Low ...	1 Jute followed by aman ...	Jute ...	6-31-0	6-31-0
			Aman (malati).	20-23-8	20-23-8
4	Office field ...	1 Aus followed by niger ...	Aus (Boaljuri).	12-13-0	12-13-0
			Niger ...	0-37-4	0-37-4
5	Ditto ...	1 Aus followed by til ...	Aus (Boajuri).	11-13-12	11-13-12
			Til ...	0-13-0	0-13-0
6	Ditto ...	1 Aus followed by matikalai ...	Aus (Boaljuri).	14-22-7	14-22-7
			Matikalai	0-38-0	0-38-0
7	Ditto ...	1 Aus followed by mustard ...	Aus (Boaljuri).	12-26-8	12-26-8
			Mustard ...	0-26-0	0-26-0
8	Ditto ...	1 Aus followed by Matikalai green manure and then mustard.	Aus (Boaljuri).	13-0-4	13-0-4
			Mustard ...	0-17-8	0-17-8

Winter rice—The following experiments were carried on winter rice.

(A) Varietal.—Nine varieties were taken and experiments were conducted in two different ravines.

The results obtained from each ravine are given separately :—

Offce Ravine.

Serial No.	Variety of paddy.	Area in acres.	Outturn actual.	Outturn per acre.
			Mds. sr. ch.	Mds. sr. ch.
1	Kataribhog	·41	11 30 4	28 8 10
2	Badshabhog	·53	11 27 0	21 35 10
3	Dadkhani	·36	9 0 0	24 21 13
4	Chinigurah	·48	11 8 0	23 6 14
5	Lohadung	·46	8 30 0	18 30 0
6	Indursail	·46	16 23 8	35 21 12
7	Lamba Chikan	·41	12 25 8	30 13 3
8	Lal Balam	·60	16 4 0	26 33 5
9	Maloty	·50	18 9 0	36 18 0

Rakhali Byde.

1	Kataribhog	·50	4 9 8	8 19 0
2	Lohadung	·55	10 22 0	19 7 4
3	Badshabhog	·43	7 4 0	16 20 8
4	Dadkhani	·43	9 2 0	21 1 14
5	Indursail	·41	8 27 0	21 5 6
6	Lamba Chikan	·45	8 34 8	19 27 14
7	Maloty	·66	17 7 8	25 30 4
8	Chinigurah	·36	12 33 0	35 25 0
9	Lalbalam	·28	6 37 0	24 29 4

Though Chinigurah gave the highest result in this byde, Indursail paddy of Economic Botanist occupied the first place among all the paddies in the farm.

Manurial experiment with Aman paddy.—The results obtained as tabulated below :—

VARIETY MALOTY.

Results of the Khoskhana Ravine manurial experiment for the year 1914-15.

Serial No.	No. of plots.	Area in acres.	Manure.	Outturn in plot.	Outturn per acre.	Average of duplicates.
				Mds. s. c.	Mds. s. c.	Mds. s. c.
1	7, 8	0·240	Unmanured	6 35 0	28 25 13	26 11 ¼
2	33	0·263	Ditto	6 11 8	23 36 4	
3	14, 15	0·229	Dhaincha green manure ...	7 23 8	33 5 6	28 9 11½
4	25, 27	0·182	Ditto ...	4 10 0	23 14 1	
5	17, 19	0·196	Dhaincha green manure and lime 5 maunds.	5 16 0	27 22 0	27 1 13
6	26, 30	0·227	Ditto ...	6 1 0	26 21 10	
7	16	0·189	Dhaincha green manure and bonemeal 3 maunds.	6 2 8	30 27 3	29 38 14
8	24, 28	0·205	Ditto ...	6 0 0	29 10 9	
9	20	0·259	Dhaincha green manure lime, 5 maunds per acre, bonemeal 3 maunds.	7 39 8	30 33 9	29 36 ½
10	21, 22	0·265	Ditto ...	7 27 0	28 38 8	
11	29	0·208	Bonemeal 3 maunds ...	7 26 8	36 33 8	33 0 14½
12	13, 18	0·199	Ditto ...	5 32 8	29 8 5	
13	32	0·300	Cowdung 50 maunds ...	8 34 8	29 28 0	28 4 15
14	9, 11	0·246	Ditto	6 21 4	26 21 14	
15	31	0·310	Cowdung 50 maunds and bonemeal 3 maunds.	7 29 8	24 38 6	26 32 8½
16	10, 12	0·242	Ditto ...	6 37 8	28 26 11	

The above figures show distinctly the high value of bonemeal.

1. *On the method of cultivation.*—Period of ploughing experiment—
Plot A was ploughed up immediately after harvesting.
Plot B was ploughed in April and May 1915.

Serial No.	Nature of Plot.	Area in acres.	Reference number of maps.	Actual outturn.	Outturn per acre.
				Md. S. C.	Md. S. C.
1	A ...	1	Shunti low plots, 3, 9, 12.	19 19 0	19 19 0
2	B ...	1	Shunti low plots, 4. 8, 13.	19 11 4	19 11 4

2. Local plough *versus* Meston plough. This was carried out in low land with Lohadung paddy.

Serial No.	Kind of plough.	Area in acre.	Reference No. of maps.	Actual outturn.
				Md. Sr. Ch.
1	Meston ...	1	Agergaon low	20 28 8
2	Local ...	1	Ditto ...	20 13 8

Spacing and Seedling experiments.—The variety Lohadung was taken and the following results were obtained :—

Serial No.	Nature of experiment.	Time of transplanting.	Reference number of maps.	Plot number.	Area in acres.	Outturn per plot.	Outturn per acre.	REMARKS.
	METHOD OF CULTIVATION.					Md. Sr. Ch.	Md. Sr. Ch.	
1	Seedlings	15th July ...	Zala Bisra	1, 2	0·25	6 36 0	27 24 0	2 per hole.
2	Ditto	15th ,, ...	Ditto	3, 5	0·28	6 15 8	22 32 8	4 Do.
3	Ditto	15th August ...	Ditto	6, 7	0·25	5 26 8	22 28 0	2 Do.
4	Ditto	15th ,, ...	Ditto	8—10	0·30	6 10 0	20 33 5	4 Do.
5	Spacing	15th July ...	Zala ...	1, 4	0·25	6 13 0	25 12 0	2 seedlings 8″ apart.
6	Do.	15th ,, ...	Do. ...	2, 3, 6, ¼ of 5	0·30	8 21 0	28 16 10	2 do. 12″ do.
7	Do.	15th ,, ...	Do. ...	¾ of 5, 7	0·30	5 29 0	19 3 5	4 do. 8″ do.
8	Do.	15th ,, ...	Do. ...	8, 9	0·25	4 4 0	16 16 0	4 do. 12″ do.
9	Do.	15th August ...	Do. ...	5, 6	0·25	5 5 8	20 22 0	2 do. 8″ do.
10	Do.	15th ,, ...	Do. ...	7	0·28	6 2 8	21 26 1	2 do. 12″ do.
11	Do.	15th ,, ...	Do. ...	8, 9	0·25	4 4 0	16 16 0	4 do. 8″ do.
12	Do.	15th ,, ...	Do. ...	10, 11	0·30	3 27 8	12 12 5	4 do. 12″ do.

Two seedlings per hole transplanted early gave the best results. The local raiyats agree in this but are afraid of flooding and insect attacks carrying away the limited number of seedlings.

Sugarcane.—Ten acres devoted to the above crop, 5 acres were plant canes and the remainder was ratooned. The crop was very promising, but in November was damaged by a cyclonic wind. B 208 suffered the most and striped and yellow Tanna the least. B 208 suffered from the attack of the white borer: red rot also made its appearance.

The results obtained are given below in a tabular form :—

Plant canes.	*Ratooned canes.*
Striped Tanna.	Striped Tanna.
Yellow Tanna.	Yellow Tanna.
B 147.	B 147.
B 208.	B 208.
Dacca *Gandari.*	Dacca *Gandari.*

Results of sugarcane experiment (plant canes), 1914-15.

Serial No.	Name of canes.	Weight of *gur* per acre.
		MDS. SR. CH.
1.	Striped Tanna	83 17 8
2.	Yellow Tanna	89 32 8
3.	147 B	94 20 0
4.	208 B	73 12 0
5.	Dacca *Gandari*	74 32 8

Results of sugarcane experiments—Ratooned canes.

Serial No.	Name of canes.	Weight of *goor* per acre. Mds. Sr. Ch.
1.	Striped Tanna	67 35 0
2.	Yellow Tanna	55 10 0
3.	208 B	9 30 0
4.	147 B	54 5 0
5.	Dacca *Gandari*	39 0 0

Jute.—12·33 acres of jute were grown in the Farm. In Mastul an average outturn of 6 maunds 31 seers of jute fibre per acre was obtained. This crop was mainly under the Fibre Expert and will be dealt with by him separately.

Laying out (reclamation).—During the year 1914-15 the sum of Rs. 1,286 was spent in jungle clearing.

Constructions and Repairs.—In the year 1914-15 all the quarters of the subordinate staff stationed at the Farm were repaired at a cost of Rs. 4,500. In the months of April and May the quarters of Farm coolies which were all in a dilapidated condition were also repaired.

Training of Apprentices.—The number of apprentices trained on the Farm has been raised from 8 to 16. It is proposed that their practical training should be supplemented with a short course in the theory of Agriculture. The lectures are to be given in Bengali.

Implements.—Improved implements are extensively used in the Farm. At the close of the year 1914-15 the following new implements have been bought :—

(1) 12 Spring tooth harrows.
(2) 20 Panjab ploughs.
(3) 1 Corn Crusher.
(4) 1 Threshing machine.
(5) 1 Winnower.
(6) 2 Zigzag harrows.
(7) 1 Cambridge roller.

A small engine is at present being set up.

Cattle.—During the year 1914-15 there was a severe outbreak of Rinderpest. Proper precautions were taken and the animals brought under veterinary treatment. The outbreak subsided with only one death. The Rinderpest was followed by Foot and Mouth disease that was promptly treated with no casualties. As it has been found the animals lose in condition for want of good green fodder, during the year 1915-16 about 5 acres of land have been put under jowar and lucerne and guinea grass has also been provisioned for in the cropping scheme.

The expenditure incurred during the year 1914-15 is Rs. 24,656-9-8, excluding that on permanent staff. Out of this Rs. 3,133-4-7 was incurred on behalf of the expert officers. The items of expenditure are as follows :—

	Rs.	A.	P.
Five per cent. of capital value of holding and building, etc. / Ten per cent. of cost of cattle and implements. ...	8,225	0	0
Feed of cattle	3,095	0	3
Seeds	164	7	3
Manures	830	15	6
Cultivation	9,983	0	11
Railway and steamer freight	200	10	6
Coolie and cart hire	17	5	0
Postage stamps	75	0	0
Hot weather charges and miscellaneous ...	2,065	2	3
	24,656	9	8
Total receipts credited to the treasury	7,340	0	0
Value of cuttings distributed	800	0	0
	8,140	0	0

Visits.—During the year 1914-15 His Excellency the Governor of Bengal visited the farm twice and the farm was inspected by the following officers :—

Director of Agriculture, Bengal, once.
1st Deputy Director of Agriculture, Bengal, nine times.
Superintendent, Civil Veterinary Department.
Dr. Barber, Sugarcane Expert, and
Mr. A. C. Dobbs, Officiating Imperial Agriculturist.

The Seed Depôt was amalgamated with the Farm in 1912 and the Farm Superintendent was placed in its charge.

During the year 1914-15 the following quantities of seed were supplied.

Sugarcane cuttings	159,388.
Winter paddy seeds	25 maunds.
Dhaincna seeds	3 mds, 27 seers.
Jute seeds	27 mds.
Cowpea	5 „
Bonemeal	61 „

During the year 1914-15 the total expenditure on behalf of the Seed Depôt is Rs. 1,822-3.

	Rs.	A.
Manures	1,409	12
Seeds	307	15
Miscellaneous	104	8

Out of the amount of Rs. 1,409-12-0, Rs. 1,002-1-0 was spent in clearing up an outstanding bill for 300 maunds of bonemeal supplied during the year 1913-14, most of which was used in that year for demonstration purposes.

Of 3 tons of Basic slag and 4 tons of Muriate of Potash bought for Rs. 401-7-0, little could be sold.

Thus in the year 1914-15, Rs. 93-9-9 only was credited into the Treasury.

KENNETH McLEAN,

2nd Deputy Director of Agriculture, Bengal.

GOVERNMENT FARM,

DACCA.

YIELDS PER PLOT $\frac{1}{16}$TH ACRE EACH.

NORTH HAZI EXPERIMENTAL PLOTS, 1914-15.

Kharif crop in Roman. Rabi crop in Italics.

Numerator / Denominator* = *Grain / Straw **Weight in maunds, seers and chittaks.**

C

	Nil	Lime, 10 maunds per acre.	Lime, 30 maunds per acre.	Lime, 60 maunds per acre.
	Md. S. C.	Md. S. C.	Md. S. C.	Md. S. C.
Aus (cowdung, 100 maunds per acre applied before sowing rabi crops).	0 29 4 3 31 7	1 2 0 5 20 0	1 2 0 4 23 0	1 15 0 4 23 6
Matikalai ... ... (*d*)	*0 3 0* *0 12 0*	*0 4 0* *0 18 8*	*0 5 0* *0 19 4*	*0 5 8* *0 14 12*
Aus (bonemeal, 3 maunds per acre, applied before sowing kharif crop, and cowdung, 100 maunds per acre, applied before sowing rabi crop).	1 7 12 5 24 8	0 30 0 6 12 8	0 31 0 4 7 1	1 13 12 4 30 2
Matikalai ... ... (*c*)	*0 4 4* *0 21 0*	*0 4 4* *0 25 12*	*0 2 12* *0 26 12*	*0 2 12* *0 24 4*
Aus (bonemeal, 3 maunds per acre).	1 3 0 3 22 6	0 33 2 4 2 8	1 2 8 4 39 4	0 38 8 5 2 0
Matikalai ... ... (*b*)	*0 3 0* *0 16 3*	*0 2 12* *0 21 4*	*0 2 0* *0 18 12*	*0 2 4* *0 13 4*
Aus (Nil)	0 11 12 1 27 13	0 7 4 1 11 4	0 23 12 4 3 8	0 16 4 4 7 4
Matikalai ... ... (*a*)	*0 2 0* *0 8 4*	*0 3 4* *0 12 4*	*0 4 12* *0 14 4*	*0 4 0* *0 12 8*

D

	Nil	Lime, 10 maunds per acre.	Lime, 30 maunds per acre.	Lime, 60 maunds per acre.
	Md. S. C.	Md. S. C.	Md. S. C.	Md. S. C.
Aus (cowdung, 100 maunds per per acre).	1 23 0 7 24 12	1 18 14 7 1 12	1 7 8 4 29 4	1 21 12 8 24 14
Matikalai ... ... (*d*)	*0 5 12* *0 17 8*	*0 6 8* *0 24 4*	*0 7 8* *0 25 12*	*0 6 12* *0 31 4*
Aus (bonemeal, 3 maunds per acre, and cowdung, 100 maunds per acre).	1 25 0 5 6 13	1 23 10 7 13 3	1 26 12 0 5 33	1 12 2 6 7 2
Matikalai ... ... (*c*)	*0 3 4* *0 22 10*	*0 4 12* *0 37 8*	*0 6 0* *0 30 0*	*0 8 8* *1 17 10*
Aus (bonemeal, 3 maunds per acre).	1 13 4 5 7 12	1 19 0 4 29 4	0 34 0 6 34 12	1 18 6 6 3 8
Matikalai ... ... (*b*)	*0 2 8* *0 22 8*	*0 4 4* *0 39 12*	*0 4 2* *0 30 14*	*0 6 0* *1 11 4*
Aus (Nil)	0 33 4 5 33 4	0 39 8 0 4 28	1 15 6 4 15 14	1 24 4 7 13 8
Matikalai ... ... (*a*)	*0 3 0* *0 14 12*	*0 5 2* *0 21 14*	*0 3 12* *0 14 6*	*0 3 4* *0 18 0*

A

	Nil	Lime, 10 maunds per acre.	Lime, 30 maunds per acre.	Lime, 60 maunds per acre.
	Md. S. C.	Md. S. C.	Md. S. C.	Md. S. C.
Aus (cowdung, 100 maunds per per acre).	1 23 4 6 21 2	1 25 8 5 25 12	1 25 4 5 38 4	1 22 4 7 7 8
Matikalai ... ... (*d*)	*0 3 0* *0 10 8*	*0 3 8* *0 8 12*	*0 6 8* *0 15 8*	*0 6 4* *0 15 0*
Aus (bonemeal, 3 maunds per acre, and cowdung, 100 maunds per acre).	1 23 12 5 38 6	1 27 0 6 11 8	1 20 4 5 31 6	1 29 4 8 23 12
Matikalai ... ... (*c*)	*0 2 8* *0 13 0*	*0 2 4* *0 19 12*	*0 2 4* *0 20 12*	*0 3 8* *0 16 4*
Aus (bonemeal, 3 maunds per per acre).	1 29 8 6 3 0	1 29 0 6 1 12	1 17 8 4 38 6	0 28 12 8 38 14
Matikalai ... ... (*b*)	*0 4 4* *0 15 12*	*0 3 8* *0 16 12*	*0 2 8* *0 18 12*	*0 2 12* *0 15 12*
Aus (Nil)	1 17 4 4 37 4	1 29 0 6 8 6	1 27 8 5 14 0	1 19 4 9 3 10
Matikalai .. .. (*a*)	*0 5 4* *0 22 4*	*0 5 8* *0 19 8*	*0 5 0* *0 21 0*	*0 3 12* *0 11 4*

B

	Nil	Lime, 10 maunds per acre.	Lime, 30 maunds per acre.	Lime, 60 maunds per acre.
	Md. S. C.	Md. S. C.	Md. S. C.	Md. S. C.
Aus (cowdung, 100 maunds per per acre).	1 3 0 8 10 12	0 27 4 5 37 12	0 36 0 6 15 0	1 1 0 5 14 12
Matikalai ... ... (*d*)	*0 4 0* *0 18 8*	*0 3 0* *0 13 8*	*0 3 0* *0 12 0*	*0 2 8* *0 16 0*
Aus (bonemeal, 3 maunds per acre, and cowdung, 100 maunds per acre).	1 6 8 7 39 10	0 37 8 6 21 14	1 5 12 5 38 8	1 7 4 6 12 4
Matikalai ... ... (*c*)	*0 3 8* *0 19 8*	*0 2 0* *0 12 8*	*0 1 8* *0 11 8*	*0 2 8* *0 22 0*
Aus (bonemeal, 3 maunds per per acre).	1 1 14 7 23 14	0 34 4 5 33 0	1 5 4 4 26 6	1 7 12 5 6 8
Matikalai ... ... (*b*)	*0 4 0* *0 20 0*	*0 3 8* *0 21 12*	*0 2 8* *0 19 8*	*0 2 12* *0 23 0*
Aus (Nil)	1 2 3 7 31 6	1 9 14 5 11 12	1 10 12 4 33 12	1 9 10 5 23 4
Matikalai ... ... (*a*)	*0 3 8* *0 11 4*	*0 4 2* *0 17 12*	*0 2 8* *0 18 8*	*0 2 8* *0 15 0*

ANNUAL REPORT OF THE RAJSHAHI AGRICULTURAL STATION FOR THE YEAR 1914-15.

Situation.—The farm is situated in the town of Rampur-Boalia, the headquarters of the Rajshahi district and it serves as a centre for agricultural work in the Rajshahi Division. The land was acquired by the Rajshahi Association by purchase from land-holders and made over to Government.

The farm covers an area of 63 acres, over 50 acres of which is cultivatable, the rest being devoted to roads, house sites and tanks.

About one-third of the land is low-land suited to winter rice and jute cultivation. The remainder is high-land with a lighter soil suitable for jute, aus paddy, sugarcane and the other dry crops of the country.

The soil has been worked for a long time, a small *basti* being situated on the south side of the area at the time of acquisition.

Dr. Leather analysed the soil in 1907 and reported as follows:—

					93·92
Silica ...	...	77·90	Soda ...	...	0·21
Ferric oxide	...	4·56	Phosphoric acid	...	0·11
Alumnia ...	...	6·15	Sulphuric acid	...	0·03
Lime ...	...	3·29	Carbonic acid	...	2·34
Magnesia ...	...	1·37	Organic and		
Potash ...	...	0·65	combined matter		3·39
		93·92			100·00

The soil is characteristically low in potash, phosphates and organic matter, but there is a high percentage of lime.

The farm is divided rectangularly by two central roads into four blocks. A third road encircles the area inside the boundary fence.

The four blocks were subdivided into one-fifth acre blocks, but on the high-land the divisions have been removed during the year under report to facilitate proper cultivation and to minimise the cost.

A proper drainage system has been taken in hand and it is hoped the scheme will be completed during the current year. The iron standards of the surrounding fence have been found too fragile to keep out cattle and are being replaced by live hedge posts such as "geola" and "khoir."

A threshing floor, cattle shed and a pucca well have been built during the year. Pucca quarters for the fieldman clerk and apprentices, and a tank are now under construction. Some alterations are required in the godown which is not water-tight, and in the Farm Superintendent's quarters where a new kitchen is required. With these improvements, and an office, the farm will be fully equipped as regards buildings.

The season has not been altogether favourable. The following table indicates the actual rainfall in comparison with the normal.

Year and Month.	Actual.		Normal.	
	Rainfall.	Days.	Rainfall.	Days.
1914.	Inches.		Inches.	
April	5·29	4	1·81	2·9
May	6·81	9	5·56	7·7
June	5·23	9	10·81	12·6
July	13·43	18	11·45	15·1
August	11·96	15	10·75	14·7
September	7·01	7	10·40	12·4
October	1·00	1	4·46	4·9
November	*Nil.*	*Nil.*	0·31	0·6
December	0·08	1	0·06	0·2
1915.				
January	0·14	1	0·34	0·8
February	0·30	2	0·84	1·3
March	4·83	4	1·15	1·6
Total ...	56·08	71	57·94	74·8

It will be seen that although the total rainfall varied little from the normal, the rainfall was badly distributed being particularly short in October and November when the aman paddy was coming into ear and when the rabi crops—wheat and oats were down, during December, January and February. The heavy rainfall in March was beneficial to the sugarcane crop and for early sowing of kharif crops.

The farm bullocks are in good condition. There was one casualty; a bullock slipping on the pucca floor of the cattle shed and fracturing its pelvis.

A poultry house has been built with an enclosed run. Fourteen cross-bred birds (Buff Langshan-Deshi) were distributed amongst the ryats.

The programme of experimental work included—

I.—Varietal experiments with—

(*a*) Sugarcane.
(*b*) Aman paddy.
(*c*) Aus paddy.
(*d*) Potatoes.

II.—Seed selection with—

(*a*) Jute.
(*b*) Sugarcane.

III.—Manurial experiments with potatoes.
IV.—Trials of new implements.

Sugarcane Varietal Experiment.

Seven varieties were tried—

(1) Vendamukhi (Rajshahi Division).
(2) Dacca gandari (Dacca Division).
(3) Shamshara (Burdwan Division).
(4) Striped tanna } Mauritius.
(5) Yellow „ }
(6) B. 147 (Barbados).
(7) Khagri.

Triplicate plots were planted of each variety, each plot being one-tenth of an acre.

The cuttings were germinated in a seed-bed and planted out in trenches 1′ wide and 9″ deep. Despite a late sowing owing to delay in receiving the cuttings, the canes did very well.

Owing to the demand for cuttings only, the canes in five plots were fully crushed. The results are detailed below—

Variety of cane.	Number of canes.	Weight of canes.	Weight of juice.	Weight of *gur*.	Number of canes per acre.	Outturn of canes per acre.	Outturn of juice per acre.	Outturn of *gur* per acre.	Percentage of juice to canes.	Percentage of *gur* to juice.
		Mds.	Mds.	Mds.		Mds.	Mds.	Mds.		
1. Vendamukhi ...	2,510	93·13	68·0	12·10	25,100	933·10	680·0	122·10	72·6	17·97
2. B. 147	1,712	94·0	65·0	12·0	17,120	940·0	650·0	120·0	69·3	18·46
3. Yellow tanna ...	1,432	90·24	60·20	11·4	14,320	902·4	602·0	111·0	66·7	18·46
4. Samshara	2,503	68·5	50·0	8·20	25,030	685·0	500·0	85·0	73·0	17·00
5. Khagri	3,114	65·25	42·34	5·34	31,140	632·5	423·4	58·18	67·0	13·80

The local raiyats were much struck with the appearance of the canes and are anxious to get cuttings. They were particularly taken with the Tanna canes.

These excel the local canes in—

(1) their upstanding character with no tendency to lodge,
(2) their hardness which prevents damage by pigs and jackals and which does not appeal to thieves who wish chewing canes.

Their disadvantages lie in the necessity of an extra man for splitting them at harvest time and in the relatively low yield of sucrose. If the *gur* is for sugar making this would be a serious disadvantage, but where it is consumed as sweetmeats the defect is not so serious.

Aman Paddy.—A varietal experiment was conducted with the following varieties :—

(1)	Chinigura	Dacca
(2)	Kataribhog	Dinajpur
(3)	Elai	Rajshahi
(4)	Malati	Dacca
(5)	Gazia	Rajshahi
(6)	Denajuri	Rajshahi (local)

The result is noted below.

	Area in acres.	Actual yield of grain.	Yield of stem.	Yield of grain per acre.
		Mds. Srs. Chs.	Mds. Srs. Chs.	Mds. Srs. Chs.
Kataribhog, fine ...	1 7/10	20 34 0	31 2 0	12 10 10
Chinigura, fine ...	1 4/5	23 22 6	34 5 0	13 3 7
Elai, fine	5/6	11 18 0	17 0 0	13 29 9
Gazia, medium	9/10	14 5 0	28 7 0	15 27 13
Malati, medium ...	1/3	3 13 4	6 5 0	16 26 4
Denajuri	1/3	8 22 0	17 4 0	25 26 0

All plots were green-manured with dhaincha. Of the three fine varieties, Elahi gave a slightly better outturn than Chinigura and Malati gave a better outturn than Gazia, although the grains were not fully developed owing to rain failure when the crop was coming into ear. The coarse variety Denajuri gave much the highest outturn, but it is not a popular paddy with the raiyats. The earlier varieties of transplanted paddy seem to suit this soil best.

Aus Paddy.—Thirteen and a half acres of aus paddy gave an average outturn of 15 maunds per acre.

Three varieties were tried, one being a local variety and the two others were the heaviest yielders on the Dacca farm.

The following comparative table indicates the result :—

VARIETY.	Area.	Total yield.	Yield per acre.
Keshia paju (local coarse) ...	1 Ac.	24 0 0	24 0 0
Larcose (Dacca medium) ...	2⅔ ,,	30 0 0	11 10 0
Boaljuri (Dacca medium) ...	⅔ ,,	6 0 0	15 0 0

These results show a wide difference between the local and the best of the introduced paddies. The experiment is being repeated.

Jute.—Six and a half acres of jute, both capsularis and olitorius, were grown for fibre, while 3 acres of both varieties were grown for seed.

The following rotation experiment was carried out :—

	Area in acres.	Total outturn.	Outturn per acre.		
			Mds. Sr. Ch.	Rs. A. P.	Rs A. P.
(1) Capsularis ...	1⅓	15 0 0	8 14 0	at 5 8 0	45 14 9
Followed by transplanted paddy.	1⅓	21 24 0	12 0 0	,, 2 8 0	30 0 0
					75 14 9
(2) Olitorius ...	4⅔	92 0 0	19 21 6	,, 5 8 0	97 14 0
Followed by oats ...	4⅔	42 0 0	9 0 0	,, 3 0 0	27 0 0
					124 14 0

The difference in yield of olitorius is 11 maunds which at Rs. 5-8-0 represents Rs. 60 an acre.

Jute seed.—One and-a-half acres was allotted to Mr. Finlow's Kakya Bombai and one-and-a-half acres to the farm grown seed (olitorius).

The outturn is given below :—

	Area in acres.	Total outturn seed.	Outturn per acre.	Fibre per acre.	Value of outturn.	
						Rs.
Capsularis ...	1½	11 0 0	7 13 5	*Nil*	11 mds. at 10	... 110
Olitorius ...	1½	9 0 0	6 0 0	8 27 0	9 „ „ 10	... 90
					Fibre 13 „ „ 4	... 52
						142

The growing of jute for seed is profitable if there is a ready market for the seed, otherwise, owing to the loss of the rabi crop, it does not pay.

Potatoes.—An experiment was conducted in the preservation of potatoes throughout the rains.

A temporary thatched hut was built with racks and *machans* fitted. Ten maunds of Naini Tal and ten maunds of Italian were spread out on the *machans* each tuber apart from its neighbour. The rotten tubers were removed regularly.

Thirteen maunds 21 seers were available for planting.

The result is tabulated below along with the results from imported Italian and Darjeeling seeds :—

Variety.	Area in acres.	Seed used.	Total outturn.	Outturn per acre.
		Mds. sr. ch.	Mds. sr. ch.	Mds. sr. ch.
Italian	⅔	10 10 13	50 0 0	75 0 0
Darjeeling	¼	2 22 15	20 14 9	81 18 4
Naini Tal preserved in farm	⅕	3 0 0	7 0 0	35 0 0
Italian preserved in farm	⅕	2 14 4	2 7 0	10 35 0

The sprouts during storage from germinating tubers were removed which, of course, seriously deteriorated the setts.

Manurial experiment with potatoes.—The experiment was conducted on fairly uniform land divided into sub-plots of ⅛th acre each.

The manure applied are tabulated below :—

Darjeeling seed was used.

Plot No.	Manure.		Total outturn.	Duplicate outturn.
		Mds. sr.	Mds. sr. ch.	Mds. sr. ch.
1 ⅛ Ac.	Cowdung ...	25 0 ...	5 22 3	1*a* 5 35 2
	Super ...	0 10 ...		
	NH_4So_4 ...	0 5 ...		
	K. Sulphate	0 5 ...		
2	Cowdung ...	25 0 ...	5 2 12	2*a* 6 5 6
	Super ...	0 10 ...		
	$NaNo_3$ ...	0 5 ...		
	Pot. Sulph	0 5 ...		
3	Castor cake	2½ 0 ...	7 21 3	3*a* 9 11 14
4	Unmanured	... ...	4 0 8	4*a* 5 0 0

The results are very low owing to the dry season, and because the plots were not irrigated. Castor cake gave very definite results.

Other Crops.

Gram.—From 20 bighas under this crop, an average outturn of 12¼ maunds per acre was obtained.

Wheat.—The results from a small area were not good: only averaging 5½ maunds per acre. The season did not suit this crop.

Oats.—The average outturn over 14 bighas. was 9 maunds per acre.

Mustard.—Gave poor results and requires the best land on the farm.

Implements.—The small Turn Wrest plough was found very useful in breaking fallow-land and in cultivating the sugarcane areas.

The Planet Bullock Hoe is in constant use in the cane areas. Three acres of cane can be hoed in a day with a pair of bullocks and two labourers.

The Planet Junior Hand Hoes are very useful for inter-cultivation of young sugarcane and potatoes.

Expenditure and Returns.—

	Rs.
Calculating the price of land at 20 years purchase, the total capital cost of the farm may be put at	12,332
The cattle cost	870
Implement	500

Expenditure—

	Rs.	Rs.
5 per cent.	12,332	616
10 „	870	87
10 „	500	50
Construction, 1914-15—		
5 per cent.	500	25
Establishment		2,556
Expenditure for 1914-15		4,144
		7,478
Receipts, including stock in hand		4,325
		3,153

Deducting Rs. 2,556 as cost of establishment, the loss on the year's working is Rs. 597.

Inspection and visits.—The farm was inspected by the Director of Agriculture on two occasions and by Mr. Smith and myself several times.

The Commissioner of the Rajshahi Division visited the farm, and the Collector of the District, and several zamindars paid visits to the farm.

I was pleased to see that on all the occasions I visited the farm, numbers of cultivators were watching operations.

Agricultural training.—Two apprentices were trained in practical agriculture on the farm and have been sent out for demonstration work amongst the raiyats.

KENNETH MCLEAN,
2nd Deputy Director of Agriculture.

ANNUAL REPORT OF THE BURIRHAT AGRICULTURAL STATION FOR THE YEAR 1914-15.

Introductory.—The line of work is being slightly modified during the current year. Varietal experiments with country tobacco had been carried out on this farm up to three years ago when experiments were discontinued.

Babu Jamini Kumar Biswas, having been placed on special duty for survey work, has been instructed to collect seeds of the various local varieties for cultivation on the farm. The differences in the varieties will then be studied and an attempt made to improve the varieties according to the requirements of the markets.

The demand for high-grade cigarette tobacco is limited, so the flue-curing operations have been suspended in the meantime.

The cigarette manufacturers confine themselves to purchasing country tobacco.

The attention paid to the cigar tobacco is producing good results and the leaf produced is finding a ready sale.

Situation.—The farm is situated at Burirhat, 5 miles north of Rangpur town, on the border of a large tobacco-growing tract. The land was acquired in 1907 and regular work started from 1909.

The farm is 52 acres in area, divided into five blocks. Of this 38 acres are under cultivation, 14 acres being occupied by roads, buildings, bamboos, grazing area, tank, etc. Of this only about 10 acres yield good tobacco under present conditions. Green manuring alone has not been sufficient to grow good tobacco, but with plenty of cowdung, however, good tobacco can be grown almost anywhere on this farm. The dry cows from the dairy farm were grazed on the farm to supplement the supply of cowdung.

The soil is a poor sandy loam on a subsoil of almost pure sand, while pure sand occurs at one foot below the surface. Lime is absent altogether. The table below gives the rainfall and number of rainy days during 1914-15, as compared with the normal:—

Month.	Actual.		Normal.	
	Rainfall.	Days	Rainfall.	Days.
1914.	Inches.		Inches.	
April	3·62	9	3·01	4·3
May	10·34	7	10·66	11·5
June	7·06	8	18·00	15·7
July	7·73	9	15·89	15·0
August	13·11	11	12·80	13·7
September	7·59	12	14·24	13·3
October	0·70	1	4·87	4·4
November	Nil	Nil	0·12	0·2
December	Nil	Nil	0·05	0·2
1915.				
January	Nil	Nil	0·50	0·9
February	1·72	1	0·54	1·2
March	Nil	Nil	0·25	1·8

It will appear that the whole of last year was unusually dry. The low rainfall from June to September did not, however, appreciably affect the tobacco which is a winter crop. The dearth of rain from October to January, however, adversely affected the tobacco crop, which was irrigated three or four times from temporary *kutcha* wells. The effect of irrigation was very marked.

Operations during the year.—The blocks were treated as follows:—

Block.	Area.	Treatment, 1914-15.	Remarks.
	Acres.	*Kharif Cowpea.*	
A	5	Green manured in summer 1914.	
		One acre limed at 30 mds. per acre and 4 acres at 10 mds. per acre.	
		Rabi oats and peas fed to cattle	Two acres gave a fair crop and 2 acres failed.
B	3½	Cowpea green manured in summer 1914.	
		Two acres manured with lime at 30 mds. and with 200 mds. cowdung per acre. Planted with tobacco during the winter 1½ acres manured with lime at 10 mds. per acre sown with oats and peas.	The crop of tobacco was quite good, but about half an acre was damaged.
C	7½	Cowpea green manured in the summer of 1914.	
		Limed at 30 mds. per acre during the winter sown with oats and peas on whole area which was fed to the cattle.	Five acres gave a good crop, but 2½ acres failed.
		Rabi.	
D	10⅓	Cowpea green manured in summer 1914.	
		Four acres limed at the rate of 30 mds. and 6 acres at 10 mds. per acre winter Sumatra tobacco was grown on ½ acre oats and peas on the rest.	This crop was not very good.
E	12	Summer green manured on 4½ acres and *aus* paddy on 1½ acres winter fallow for grazing.	

The following outturns were obtained from the crop of 1913-14 :—

Crop.	Acres.	Outturn.	Outturn per acre.
		Mds. srs. chs.	Mds. srs. chs.
Sumatra	2	9 32 0	4 36 0
White Barley	2¼	12 20 0	5 33 5

Seven hundred and ninety pounds of Sumatra tobacco were sold at Rs. 591-4-0, or an average price of Rs. 60 per maund. White Barley and little Flemingen still remain unsold. This year's Sumatra is still under fermentation.

Distribution of seed.—The following seeds were supplied :—

	Oz.
Sumatra	31
Turkish	5
White Barley	7
Local	3¼

Two apprentices completed their training and four new apprentices are now under training. A Kashmere student sent by the Kashmere Supply Association is also learning the cultivation and curing of tobacco.

Babu Jamini Kumar Biswas was in charge of the farm up to 20th November 1914, when he was put on special duty for tobacco survey work. An overseer has since then been in charge under his supervision.

Receipt and Expenditure.

Expenditure.

	Rs.
Amount of expenditure	3,534
Add—5 per cent., capital value	1,500
Total ...	5,034
Add—salaries of staff	1,392
Total ...	6,426

Receipts.

25 maunds of tobacco at Rs. 80 per maund ...	2,000
80 „ oats at Rs. 3 per maund	240
67 „ oats at Rs. 3 „	201
Straw	150
Aus paddy	130
Total ...	2,721
Total working costs	6,426
Total estimate receipts	2,721
Total loss ...	3,705

K. McLean,

Second Deputy Director of Agriculture, Bengal.

ANNUAL REPORT OF THE RANGPUR DEMONSTRATION FARM FOR THE YEAR 1914-15.

THE land was acquired in 1905 by the Rangpur District Agricultural Association for conducting experiments in agriculture and as a Demonstration Farm. In 1906, the Farm was made over to Government and thereafter for three years was run as an Agricultural station under the direct management of the Department of Agriculture. On the 1st August 1908, the Farm reverted to the management of the Association, the Department having opened a Tobacco Farm of its own at Burirhat in tobacco tract, 5½ miles from Rangpur town. Government continued to subsidise the Farm, but it was found desirable after three years to take over complete charge of the Farm, so again the station came under the complete control of the Agricultural Department on the 1st August 1911. The expenses in connection with the working of the Farm are defrayed by Government.

The Farm is situated in the town of Rangpur near the cutchery.

The area of the Farm extends to about 20 acres, of which 15½ acres are under cultivation and the remaining portion is occupied by roads, buildings, etc., and a District Board's Nursery. Of these 15½ acres, 4½ acres is highland (including District Board's Nursery) suitable for sugarcane, potato and jute, while 11 acres is suitable for paddy. About 3 acres along the north boundary is low bheel and suited only for *aman* paddy.

There is no arrangement for irrigation on this Farm and the crops entirely depend on natural rainfall.

The soil is a rich moist loam of light texture. The subsoil at a depth of 3 or 4 feet is almost pure sand.

A sample of soil taken from the tobacco-growing portion of the Farm was analysed by the Imperial Agricultural Chemist at Pusa. Dr. Leather's report on the composition of the soil is as follows :—

	Mechanical Diameter.		Composition per cent.
Clay smaller than	.....	·002	·74
Sand ,, ...	·002	·004	3·81
Do. ,, ...	·004	·008	5·76
Do. ,, ...	·008	·016	8·78
Do. ,, ...	·016	·032	28·59
Do. ,, ...	·032	·120	42·25
Do. larger than	.....	·120	5·90
			95·83
Organic matter and combined water			4·17
Total ...			100·00

The soil is similar to the Gangetic alluvium and is a thoroughly open soil.

Chemical composition—

Carbonate of lime	·091
Organic nitrogen	·101
Available phosphoric acid	·098
Available potash	·065

"The soil contains very little carbonate of lime, but it is unusually rich in nitrogen, phosphate and potash. If it is regularly manured with farmyard manure, it should pay to lime it over in about 10 years."

The following table gives the approximate normal rainfall of Rangpur with the number of rainy days and the actual rainfall in 1914-15 :—

Month.	Actual.		Normal.	
	Rainfall.	Days.	Rainfall.	Days.
1914.	Inches.		Inches.	
April	3·20	8	3·01	4·3
May	12·99	9	10·66	11 5
June	7·45	6	18·00	15·7
July	5·47	13	15·89	15·0
August	13·42	16	12·80	13·7
September	10·40	14	14·24	13·3
October	·60	1	4·87	4·0
November	Nil	Nil	0·12	0·2
December	Nil	Nil	0·05	0·2
1915.				
January	Nil	Nil	0·50	0·9
February	1·91	5	0·54	1·2
March	·26	2	1·25	1·8
Total ...	55·70	74	81·93	81·8

From the above table it will be seen that the weather was very unfavourable, specially for jute and winter paddy. Transplanting of winter paddy and retting of jute were quite impossible for want of sufficient rain-water. These two crops are the principal sources of income.

The following table indicates the yields :—

Crop.	Area.	Total outturn.	Yield per acre.	Remarks.
	B. k.	Md. sr. ch.	Md. sr.	
1. Jute for fibre	2 1	12 6 0	18 10	
2. Local jute for seeds ...	6 0	9 30 0	5 0	This crop did not grow for want of sufficient rain at the time of sowing.
3. Fibre Expert's jute for seeds ...	1 15	2 23 8		
4. Aman paddy	6 0	14 29 8	7 15	On account of rain the crop was a total failure.
5. Ratooned sugarcane ...	2 0	19 8 0 *gur* 20 13 6	29 30 *gur* 33 0	
6. Mustard	0 16	2 12 0	8 25	
7. Cabbages	0 10	97 2 9	583 0	
8. Cauliflower	0 10	24 3 3	145 0	This does not suit this district.

Distribution of seeds.

Owing to the drop in the prices of jute the area under cultivation in the district has been much reduced this year, and there was thus very little demand for jute seed. It was only with difficulty 2½ maunds were distributed. As the winter paddy crop failed, only 6½ maunds of seeds were preserved. This and 20 maunds of Kataribhog paddy seeds from Dinajpur were distributed amongst the raiyats.

Implements (20 Meston ploughs and 3 Hand Hoes) were supplied direct from Calcutta for distribution.

Receipts.

	Rs.	A.	P.	
Credited to the Treasury	380	6	6	
As per outstanding bills	75	6	9	
In stock	200	0	0	(jute fibre, jute seeds, mustard and paddy, etc.)
Total ...	655	13	3	

Expenditure.

	Rs.	Rs. A.	Rs. A.
Five per cent. of capital expenditure and 10 per cent. of cost of cattle and implements		...	1,088 0
Establishment		472 8	
Feed of cattle	120		
Purchase of seeds	175		
Manures	75		
Implements	30		
Wages of labourers	1,430		
Petty repairs	180		
Miscellaneous and office expenses	295		
		2,305 0	
			2,777 8
Total			3,865 8

The capital expenditure is very high owing to the changes in management, on each occasion there being construction of buildings, roads, etc.

Only one apprentice was under training on this farm. After 10 months' training he was deputed to Rajshahi for demonstration work, where he unfortunately died in the month of November 1914.

Babu Jamini Nath Chakravarti was in charge of the farm during the year.

The Collector of Rangpur, J. N. Gupta, Esq., I.C.S., visited the Farm once, the Fibre Expert twice and the Director of Agriculture, 1st Deputy Director of Agriculture and myself visited and inspected the farm several times.

K. McLean.

Second Deputy Director of Agriculture.

ANNUAL REPORT OF THE RANGPUR DAIRY FARM FOR THE YEAR 1914-15.

Introductory.—The problem of the improvement of Bengal cattle has been considered in Bengal for many years and in 1913 the Rangpur Dairy Farm was started for the purpose of improving the local cattle.

There has been a deviation from the original scheme in that cross-bred bulls of Australian—Patna strain from Shillong are now being used under the advice of the Veterinary Department instead of selected Bengali bulls as was laid down originally.

Another question of importance, *i.e.*, the supply of milk in mufassal towns, is also being dealt with but it is subsidiary to the main question, the calves receiving first consideration. The milk supplied in mufassal towns is poor in quantity and quality and the supply of milk in sealed cans is appreciated.

As it is considered that dairy farming, pure and simple, is not profitable, profit-producing crops like sugarcane and jute are being grown to enhance the returns. No experimental cropping is being done, except with fodder crops.

With the quantity of farm yard manure-produce, good crops should be obtained.

Reduction in the expenditure on labour is aimed at by the introduction of an oil engine to drive cane crushers, grain crushers, chaff cutters and pumps, etc.

Locality.—Rangpur was selected for the farm for various reasons, chief among which were the following :—

(1) A site close to the town was available at moderate cost, the cost of acquiring 1,000 bighas being about Rs. 45,000.

(2) There is a ready market for the sale of milk at a good price.

(3) There was a strong local demand for such a farm, the local Agricultural Association having already formulated a scheme for a Cattle Farm, though of a somewhat different type.

Site, description and area.—The farm is situated very close to the railway station, on both sides of the railway line and about a mile from the town. The southern boundary of the farm runs almost parallel to the Tajhat road about 500 feet away from it, and the Skrine canal forms the greater part of the northern boundary.

The farm has an area of 1,000 bighas consisting of 750 bighas of high-lands, 200 bighas of low-lands fit for aman paddy, and about 50 bighas of *beels* (which dries up in the winter). With the exception of about 50 bighas which is rather sandy, the high-land is mostly suitable for the cultivation of jute, sugarcane, potato and tobacco.

The area is occupied as follows :—

Under cultivation	600 bighas	(including paddy land.)
Bamboo groves	30	,,
Roads and drains	30	,,
Farm steading, staff-quarter and paddock	40	,,
Pasture	100	,,
Tanks, thatching grass jungle and waste	200	,,

Practically the whole of the low-land and a large part of the *beel* is being put under aman paddy.

Soil and climate.—All the high-land practically belongs to one type. The soil is a light sandy loam, and appears to be deficient in lime. Samples have been taken by the Agricultural Chemist for analysis, but the results are not yet ready. The subjoined table shows the rainfall from 1st June 1914 to 30th May 1915. With the exception of 26″ in March and 36″ in the beginning of April there was no rain till May. This retarded the sowing considerably, as some of the plots were absolutely without any moisture. The previous winter being also dry the germination of sugarcane was also adversely affected. Since the beginning of May, however, it has

been raining almost every day, and the heavy rains have unfavourably affected the weeding of jute and sugarcane.

Months.	Normal.		Actual.	
	Rainfall.	Days.	Rainfall.	Days.
1914.	Inches.		Inches.	
June	18·00	15·7	7·45	6
July	15·89	15·0	5·47	13
August	12·80	13·7	13·42	16
September	14·24	13·3	10·40	14
October	4·87	4·0	0·60	1
November	0·12	0·2	*Nil*	*Nil*
December	0·05	0·2	*Nil*	*Nil*
1915.				
January	0·50	0·9	*Nil*	*Nil*
February	0·54	1·2	1·91	5
March	1·25	1·8	0·26	2
April	3·0	4·3	3·20	8
May	10·66	11·5	12·99	9

Work done.—The work done during the year may be described under the following heads:—

(1) Reclamation.
(2) Construction.
(3) Cattle.
(4) Cultivation.

(1) *Reclamation.*—Five hundred bighas were roughly cleared and levelled last year. This work was finished, and the area has been brought under cultivation during the year.

About 200 bighas more have been cleared and levelled during the present year. There were two *beels* on the farm. The smaller of these has been converted into a tank at a cost of nearly Rs 2,500.

The tank will be used for bathing cattle and, perhaps, also for rearing fish. A drain has been cut through the larger *beel* to the Skrine canal and the whole of the *beel* has been sown with aman paddy.

All the bamboo groves have been cleared and earth has been put around the existing clumps. New shoots have also been planted to fill up gaps in the groves which are intended to be kept permanently.

A few kutcha roads have been made and drains have also been dug. The whole farm has been re-surveyed and a new map prepared.

(2) Construction—The following new works have been completed during the year:—

(i) Trough round the well.
(ii) Two liquid manure tanks.
(iii) Two cooly sheds.

The office room, calf pen, and godown which were under construction and not quite finished while last year's report was being written, has since been completed. Another 1,020 yards of the boundary has also been fenced in.

It is proposed to construct the following works during the present year, if money is available:—

(i) Third cow shed.
(ii) Engine shed.
(iii) Godown.
(iv) Pucca drain around the farm steading.
(v) One silo.

(3) *Cattle.*—The original idea was to deal with purely Bengal cows having no up-country blood in them. It was soon found, however, that there was hardly any breed really distinctive to Bengal or even anything approximating to it. Even cows purchased from remote villages were found to have traces of up-country blood in them. The few cows purchased as pure country cows were very small in size and poor milkers. It was therefore decided to get fairly good sized animals, even although they had a certain amount of cross-blood in them.

The following statement shows the number of cows purchased during the year with their average price :—

Place.	Number purchased.	Average price per cow.	Contingencies per cow.
		Rs. A. P.	Rs. A. P.
Malda	4	67 0 0	26 1 9
Rangpur	7	81 6 10	1 6 10
Midnapore	8	56 4 0	14 9 9
Howrah	11	51 5 6	13 1 0
Dacca	10	72 3 3	10 3 9
Jalpaiguri	1	50 0 0	39 14 3
Serajgunj	6	87 0 0	12 6 9
Bhairab	5	61 3 3	15 5 9

So far the cows obtained from Dacca and Malda appear to have given the best results, and to have stood the climatic conditions fairly well. Until, however, the large up-country cows, purchased from Sonepur, have passed one full milking period on the farm, it will be somewhat premature to say how they will be suitable for this place. The greatest difficulty, however, was experienced in obtaining good animals. Some of the cattle purchased had to be rejected on the advice of the Veterinary Department, and also because some of them were seriously affected by the change from their original conditions. Instead of obtaining the rather poor specimens available, the purchase of cows was stopped towards the end of the year. Now that we have got a herd of nearly 100 animals, it is proposed to add to the herd by the calves of our own cows (some of which are now over 2 years old) rather than by purchasing from outside. Although this process may be somewhat slow, it is likely to prove more economical in the long run and to give us better animals. If, however, really good animals are available outside they will be purchased. A statement is given below showing the daily average yield of milk per cow per day for the period the cows are actually in milk. Column I shows the average for those cows only which calved on the farm. Column II shows the figure for all the cows in milk (which include cows purchased with their calves).

	I	II.
1914.		
July	3·7	3·1
August	3·8	3·0
September	4·2	3·2
October	4·1	3·3
November	4·1	3·6
December	5·7	3·2
1915.		
January	4·3	3·3
February	3·8	3·5
March	3·7	3·3
April	3·6	3·6
May	4·4	4·2

The total yield of milk during one full lactation period were, for four of the best cows, as follows :—

1.	Kaly	2,593	lbs.
2.	Ganga	1,849	„
3.	Santy	1,423	„
4.	Laksmi	1,244¼	„

These yields were obtained after the calves were given a fair proportion of milk.

So far, some of the cows give indication of improvement. At the same time there are others which show, if anything, signs of deterioration by the change.

A few of the cows, as will appear from the figures given above, have given more than average of over 700 seers of milk in one lactation period. Our task is to bring up the average of the whole herd to this level. Whether or not, we can bring up the whole herd to the standard of our best animals, can only be judged.

Feeding.—Linseed cake, rape cake, mushuri, mati kalai, pulse bhunshi are the principal concentrated food given to the cows. Cocoanut cake is also being tried. At first the cows did not take to the cocoanut cake very readily, butthey now seem to have become quite accustomed to it. The cost of feeding and up-keep comes to about Rs. 100 per cow per annum.

Juar in the rains and oats and peas (all cut green), together with paddy straw are the most suitable roughage available. Difficulty is experienced during December and again in April and May in obtaining suitable green fodder. It is proposed to erect a silo to overcome this difficulty.

Feeding and weaning calves.—The following is the system followed :—

For the first fortnight after calving, the cows are not milked at all, and the calves receive as much as they want. The surplus milk, however, is drawn out and thrown away until fit for use. After a fortnight, calves are separated from their mothers at about 8 P. M. and the cows milked at about 5 A. M. next morning. The calves are, however, allowed to suck a certain quantity of milk both before and after milking, and they are allowed to run free with their mothers for the rest of the day. This continues for about three months, the period of separation from the mother being gradually lengthened as the calf grows up.

After about three months—the actual period depending on the condition of the calf—they are again separated from their mothers at 11 A.M. and the cows are milked a second time at 3 P.M. The calves are again allowed with their mothers till evening, when they are tied up. Neither at the morning's milking nor in the evening, is all the milk allowed to be drawn, a certain amount always going to the calves. As soon as they can digest, the calves are allowed small quantities of grain, oil cake and green grass—the amount being gradually increased as they grow up. After about the fifth or six month the calves are allowed with the cows only in the afternoon (after milking). They are, however, allowed larger quantities of grain and oil cake.

Diseases and casualties.—It was noted in the last year's report that a severe attack of Streptothrycasis occurred in the herd towards the end of April. With the advent of the rains there have been a few cases this year also, but to a much less degree than last year. The disease appears to recur more than once in an animal once affected. The cause of the disease has not yet been discovered, but it is not improbable that they catch the germs while out grazing. Under the directions of the Veterinary Superintendent, a foot-bath is being used, during the rains, containing a salt and phenyle solution, and the animals are made to walk through the solution while entering the stalls. There were no other serious diseases or outbreaks. The whole herd was inoculated with rinderpest serum.

The following statement shows the number of deaths and sales during the year :—

	By sale.	By death.
Cows	3	1
Calves	45	18
Bullocks	*Nil*	1
Bulls	*Nil*	1

The subjoined table shows the stock in hand on the 30th June 1915—

Bulls	... ...	... 2
Bullocks	... ...	... 59
Cows	... ...	... 111
Calves	... ...	... 101**

**Suckling	... ..	...	73
Over 1 years' old	male	...	5
	female	...	11
Over 2 years' old	male	...	3
	female	...	9
			101

(4) *Cultivation.*—Two hundred bighas have been brought under cultivation during the year. This, together with the area ploughed up last year, makes up over 700 bighas under cultivation. Of this about 100 bighas have been left for pasture.

The following crops were grown during the year :—

Kharif—	*Rabi*—
Joar for fodder.	Darjeeling potatoes.
Aus paddy.	Italian „
Jute.	Country „
Cowpea.	Country tobacco.
Sugarcane.	Sumatra „
	Mati kalai.
	Mangel wurzel.
	Turnips, Carrots } for fodder.

The sugarcane was mostly used for cuttings, only the lower 3 feet being used for making *gur*.

The Italian potatoes, having regard to the high price of seeds, did not prove a great success. The Darjeeling potatoes gave a larger outturn per acre than the country potato, but the people are willing to pay a higher price for the latter—as the Darjeeling variety does not keep so well in the climate of Rangpur.

Tobacco.—Seeds of varieties of local tobacco were procured and grown side by side on $\frac{1}{5}$th acre plots as a variety test, and also to select plants for breeding. Their names are given below :—

Bhrugi, Mena Bhrugi, Jora, Matihari, Godla, Sindur Khatua, Surjamani and Surja Bhirgi.

This work, in future, will be carried out at the Burirhat farm.

Sugarcane.—It was intended to plant at least 100 bighas this season, and cuttings were procured accordingly from Dacca. A very large proportion of the cuttings obtained were, however, damaged in transit. On account of the severe drought during the early part of the season, a large proportion of the cuttings planted did not germinate, and the gaps had to be filled up at the cost of decreasing the area. The following varieties have been obtained from Dacca, Rajshahi and Burdwan and planted on half bigha plots :—

Dacca gandari.	
Yellow tanna.	
Striped tanna.	Dacca.
B. 147.	
B. 208.	
Java.	... Burdwan.
Vendamukhi.	... Rajshahi.

The bulk of the area, however, has been planted with *gandari*.

Paddy.—The varieties sown and planted are almost all local. A few bighas will, however, be planted with Kataribhog and four varieties of transplanted paddy—Indursal, Lohadang, Lambachikon and Paikashor—have been obtained from the Economic Botanist for trial.

Jute.—Two varieties—Kakya Bombai No. 7 and Dalsing Sarai No. 4 have been obtained from the Fibre Expert. These along with the Kakya Bombai grown on the farm last year are being tested against the local Hewti in comparatively large block.

Seeds from individual plants were selected last year and these have all been sown in separate beds for further selection.

During the rabi season it is proposed to plant 50 bighas each with potato and tobacco. The varieties of tobacco planted will depend somewhat on the results obtained this year.

Fodder crops.—Mangel and carrots as well as a plot of lucerne will be tried this year again. Several varieties of grass have been obtained from Australia for trial. A small plot of soya bean is also being grown.

Implements.—The bullock power chaff-cutter has proved very satisfactory. A number of Punjab ploughs and Spring Tooth Harrows have been obtained and are being used. A ridging plough is being used for planting sugarcane, and this as well as the Punjab plough have been found serviceable in earthing sugarcane. The Planet Junior Hoe and the Meston plough have been in constant use on the farm. It is expected to set up the engine during the current year.

Staff.—Mr. J. N. Chakravarty was in charge throughout the year, but a good deal of his time was taken up in touring in connection with the purchase of cattle and other preliminary arrangements for the farm. The construction and reclamation works also took up a good deal of his time. As all these have been nearly finished now, it is hoped that the farm will soon be in regular running order.

The following statement shows the expenditure incurred during the year :—

	Rs.	A.	P.
Establishment	3,661	0	2
Special contingencies—			
Reclamation	6,831	5	9
Purchase of implements	4,022	14	3
Purchase of cattle	5,516	6	0
Petty construction	5,498	4	6
Purchase of books, maps, etc.	142	12	0
	22,011	10	6
Regular contigencies—			
Feed of cattle	11,714	4	0
Seeds, plants and manures	2,778	8	3
Wages of labourers	11,748	0	3
Petty repairs	2,786	14	3
Purchase and repair of furniture	488	5	3
Postage and telegram charges	161	1	0
Country implements	433	12	6
Rents and taxes	76	8	0
Office expense and Miscellaneous	1,383	0	6
	31,570	6	0

The sum of Rs. 9,867-3-8 was realised as sale proceeds during the year. This represents quite a big loss, but this was anticipated when the farm was started. A few words may be added as explanation of some of the items.

Food of cattle (Rs. 11,714-4).—About Rs. 2,000 worth of cattle food is in stock.

Labour (Rs. 11,748-0-3).—Quite a large proportion of this was spent in breaking up new land and clearing small jungle, which is hardly a recurring expenditure.

Petty repairs (Rs. 2,786-14-3).—Some additions were made to a few buildings from this head.

It may also be noted that better outturns were obtained from most of the crops, and this is expected to be improved further during the current year.

Training of apprentices.—Nine apprentices received practical training in agriculture in 1914-15, and at present there are 12 men being trained.

Visits.—The farm was visited and inspected by the Hon'ble Member, Mr. Beatson Bell, the Collector of the district, the Government Sugarcane Expert, Dr. Barber, the Director of Agriculture, Fibre Expert, Economic Botanist, Agricultural Chemist, 1st Deputy Director of Agriculture, Veterinary Superintendent and myself.

KENNETH MCLEAN,

2nd Dy. Director of Agriculture, Bengal.

Dated Dacca, the 13th July 1915.

From—The Superintendent of Agriculture, Dacca Division,

To—The Director of Agriculture, Bengal,

(Through the 2nd Deputy Director of Agriculture, Bengal).

ANNUAL REPORT OF THE SUPERINTENDENT OF AGRICULTURE, DACCA DIVISION.

Staff.—The staff employed during the year under report consisted of—

One Superintendent of Agriculture for the Dacca Division.

Four Agricultural Officers for the four districts, viz., Dacca, Mymensingh, Faridpur and Barisal.

Twenty-nine Demonstrators distributed as below:—

Dacca	10
Mymensingh	10
Faridpur	5
Barisal	4

Tour.—The Superintendent was on tour for 281 days out of which 40 days were spent in Darjeeling in connection with the propagation and purchase of seed potatoes most of which were taken in the division. The number of days spent on tour by the District Agricultural Officers is noted below:—

Dacca	246
Mymensingh	230
Faridpur	213
Barisal	200

The fieldmen Demonstrators are practically wholetime outdoor officers being out in cultivators' fields at least some hours of every day assisting them in demonstration work.

The following is a list of main items of the district works:—

(1) Introduction of superior varieties of seeds specially raised by the experts.

(2) Selection of seeds on raiyats' fields mainly jute and paddy.

(3) Effect of bonemeal on paddy and jute.

(4) Effect of bone and lime on red soils.

(5) Introduction of potatoe cultivation.

(6) Introduction of superior varieties of sugarcane from Dacca Farm.

(7) Proper conservation of cattle dung and urine.

(8) Green manuring of jute with sunn hemp and paddy with dhaincha.

(9) Introduction of new crops.

(10) Introduction of improved implements.

In the Dacca and Mymensingh districts all the above items are being demonstrated. Items Nos. 3 and 4 are not applicable in Faridpur and Barisal and as such left out in those two districts.

(1) *Introduction of superior varieties of seeds specially raised by the Experts.*—Large quantities of pure seeds jute and paddy raised by the Fibre Expert and Economic Botanist on single line culture method have been distributed among cultivators and are being tried against cultivators' best seeds. The idea is to shew them that best seeds will always give best results. It is expected that there will be a great demand for these seeds in the next season. A list of the people who are trying these seeds will be found in Appendix 1.

(2) *Seed selection in raiyats' fields.*—Not only are the specially selected pure seeds being supplied to cultivators as stated above but they are also being taught how they can with advantage make better selection than they are doing now in their own fields. Their usual practice is to only keep separate the best portion of their crop without any attempt at plant

selection which is the basis of seed selection. They are being shown that keeping seeds from the best plants in a field gives a very much better result. This is the 3rd year of this work and it is daily gaining favour with the cultivators. Comparative results of seeds thus selected and those ordinarily kept by the raiyats will be found in Appendix II. These have been so convincing that applications for this demonstration are becoming larger every day. Appendix III contains the names and addresses of people who have done seed selection in our method during the year under report.

(3) *Effect of bonemeal on paddy and jute.*—Bonemeal is now being recognized by many as a profitable manure and is being used as far as their means allow not only for paddy but for jute and other crops also, such as chillies, brinjals, etc. The main difficulty of the cultivators is to find ready-money to buy the manure with. Where there are Co-operative Banks, the bone is purchased by them and distributed among the members. To others the department is supplying on credit as far as circumstances permit and the cost realized after harvest. About 500 maunds of bonemeal has been taken by raiyats during the year under report. The demand is rising so high that a scheme has been put forward for setting up a bone-crushing mill at the Dacca Farm. Some of last year's results of first application will be found in Appendix IV and the residual effects of previous applications in Appendix V.

(4) *Effect of bone and lime in red soils.*—Very convincing results have been obtained by the Fibre Expert in this experiment and attempt is being made this year to demonstrate its advantage in cultivators' fields around the Dacca Farm. Plots have been divided into two parts, both parts receiving an equal application of cowdung at 75 maunds per acre but one of these treated with an additional quantity of 3 maunds bone and 30 maunds lime per acre. This treatment of bonemeal and lime has been found to give an extra yield of about 3 maunds of fibre. The effect on the following rabi crop is still greater. Appendix VI gives the names of the owners of the holdings where this demonstration is being made.

(5) *Introduction of potatoes.*—A few years ago this was practically a foreign crop to this part. The attempt at introduction was first made by the Eastern Bengal and Assam Agricultural Department. It is now making a headway and if the progress is not retarded by any unforeseen cause the crop will soon become common in the alluvial tracts of Eastern Bengal. The demand for supply of seed potatoes is increasing every year. In 1911-12 the quantity supplied was only about 50 maunds. In 1912-13 the order rose to over 200 maunds. In 1913-14 over 500 maunds were supplied. During the year under report the divisional requirement rose to about 800 maunds and for the next season although it is too early yet and in spite of bad conditions prevailing, the indent has gone up to over 1,500 maunds. Results for the year under report will be found in Appendix VII.

(6) *Introduction of superior varieties of sugarcane from the Dacca Farm.*—Desired progress could not be achieved in this as most of the cuttings raised had to be spared for other farms and only a very small quantity was available for the district works. Arrangements have been made to get over such difficulties in future and it is hoped this work will fare quite as well as others. The demand for the year under report however was so enormous that, even if the farms were not supplied, the whole of it could never be met.

(7) *Proper conservation of cattle dung, &c.*—Cultivators are very careless in this matter. The cowdung is usually heaped in some corner in the open exposed to sun or rain while no attempt is ever made to utilize the urine. Practical demonstrations are being given to show the immense advantage in pitting the cowdung under inexpensive sheds into which is also thrown down the urine-soaked earth from the surface of the floor (kutcha) of the cow-shed which is of course replaced by a fresh layer of dry earth. There was some difficulty at first to induce people; but since they have seen what a rich stuff is obtained in this way with almost no cost, the number of pits are increasing by leaps and bounds. Two years before there were only about 200 pits. Last year the number rose to over 500, but this year a pit can be seen almost in every other household near the headquarters of a Demonstrator. A list showing the names and addresses of people who have lately dug such pits will be found in Appendix VIII.

(8) *Green manuring with sunn hemp for jute in light soils and dhaincha for paddy.*—Attempt is being made to extend the use of this cheap form of manuring in places where it can be profitably introduced. The progress is rather slow but it is only natural considering the prejudice people have for

anything new. Both sunn hemp and dhaincha are rank growers producing large amount of leaves a fact combined with their power of absorbing nitrogen from the atmosphere and transferring it into the soil make them the most suitable crops for the purpose. They are both grown, cut, ploughed in and incorporated with the soil about a month before the sowing of the main crop and have been found to give beneficial results. Appendix IX contains a list of the people who are trying this.

(9) *Introduction of new crops.*—The crops in view are tobacco, groundnut, boro-paddy, deep-water paddy, juar, &c. All over the division there is great demand for tobacco. Stray trials by private individuals here and there have shown that groundnut also can be grown easily. In Bakarganj there is a great scope for the introduction of deep-water paddy in the bhil tracts and aus in the Sundarbans while the introduction of boro would be a boon in some parts—specially the Sadar division of Faridpur. Cultivators often come for advice regarding supply of fodder crops. Juar has been tried by some with success. Endeavours are therefore being made to introduce these. Signs of success are already evident in many cases where seeds have been supplied and it is hoped that quite encouraging figures will be available for publication in the next year's report.

(10) *Improved implements.*—Demonstration with the Meston plough and the Planet Junior hand hoe being continued with fair success, specially in the case of the latter implement which is found very effectual for interculture in crops grown in lines. Several orders for further supply of this implement have been received. Regarding the Meston plough the advantage of soil inversion is greatly appreciated but the implement as a whole is altogether unsuitable for heavy or wet soil. People are looking forward for the introduction of a plough without these defects and attempts are being made to manufacture one.

(11) *Exhibitions.*—Then Exhibitions were held in the Division during the year under report. Two of these were general Agricultural Exhibitions—at Bandarkhola and Baliakandi in Faridpur district specially organized by the Collector of District. All sorts of the agricultural products and cattle, poultry, etc., were shown in these. From this Department, besides substantial money grants, arrangements were made for practical demonstrations. Near the Exhibition grounds a piece of land was taken and prepared in time for potatoes where the crop was grown to show that potatoes can be easily grown with advantage in the locality. A model cow-shed was raised with arrangements for proper conservation of cattle dung and urine. The uses of improved implements were also shown. All these were very much appreciated by the cultivators to whom some implements were given as prizes. The other eight Exhibitions were purely potato shows organised specially for the purpose of encouraging potato cultivation and were held in the headquarters and mufasil of the different districts. The people who took seeds from the Department and grew potatoes brought samples of their crops to these shows and were rewarded according to the merits of their crops. Local officials and people of all classes most of whom were of course cultivators gathered there. The shows were all successful as they seem to have served the purpose for which they were started. Over 1,500 maunds seed potatoes have heen requisitioned up to date for the next season by cultivators against about 800 maunds last season.

(12) *General.*—Grateful acknowledgments are due to the Commissioner of the Division the Collectors and Subdivisional Officers of the different districts in the Division for their very kind help and co-operation without which very little could perhaps have been done. No help was ever grudged by them and never indeed were they approached in vain. Thanks are also due to the members of the Co-operative Department for the help they gave. Special mention may be made of Khan Shaheb Abdul Gani of Faridpur, Khan Bahadur Hemaituddin of Barisal, Babu H. L. Das of Dacca and Babu U. N. Sen of Mymensingh. Khan Shaheb Abdul Gani spared no pains to introduce the potato cultivation in Faridpur district and he organized the potato show at Bhanga at a great cost to his own purse. The District Agricultural officers also deserve commendation for the untiring zeal and energy with which they discharged their duties all throughout the year and made their demonstrations successful.

R. Das Gupta,

Superintendent of Agriculture, Dacca Division.

APPENDIX I.

Names of cultivators trying paddy seeds supplied by the Economic Botanist against their own seeds.

DACCA.

No.	NAMES OF CULTIVATORS.	Village.
1	Pyarimohon Mandal	Basbari.
2	Jadab Mandal	Do.
3	Asananda Mandal	Do.
4	Dandadhar Mandal...	Do.
5	Ramananda Mandal	Do.
6	Rajani Mandal	Do.
7	Dwijaraj Mandal	Do.
8	Kalicharan Mandal	Do.
9	Mahananda Mandal	Do.
10	Sheikh Khalil	Lalmati.
11	Sheikh Samiraddi	Do.
12	Sheikh Abdul Waheb	Do.
13	Abhoy Kumar Dutta	Rayerbazar.
14	Bhuban Mohon Datta	Ditto.
15	Sheikh Amsar Khan	Tallabag.
16	Sheikh Ali Nawaz	Ditto.
17	Sheikh Asu	Ditto.
18	Lakshmi	Kaprul.
19	Sheikh Nur Hossein	Do.
20	Sheikh Karam Newaz	Do.
21	Indumohon Mandal	Bibirbazar.
22	Basudeb Mandal	Ditto.
23	Tarak Chandra Pal	Katasur.
24	Sheikh Bujrat Ali	Jangamalirtek.
25	Sheikh Golam Ali	Hoshnabaz.
26	Kokaram Mandal	Shekhertek.
27	Sheikh Sharif	Bamanteki.
28	Sheikh Jelal	Jaffrabad.
29	Sheikh Belal Khan	Ditto.
30	Gopal Sing	Lalkuthi.
31	Gun Singh	Tatinibag.
32	Jaharaddin	Bhowalbag.
33	Rebati	Ditto.
34	Shekhar Singh	Ditto.
35	Khakari	Tesgaon.
36	Belai	Ditto.
37	Abdul	Ditto.
38	Tulan Singh	Manipur.
39	Paban Singh	Do.
40	Ratneswar Singh	Do.
41	Chandranath Deb Sarma	Do.
42	Manohar Singh	Do.
43	Chandrabadan Singh	Do.
44	Sitabadi	Tulsibhita.

MYMENSINGH 1914-15.

Names of cultivators trying paddy seeds supplied by the Economic Botanist against their own seeds.

No.	NAMES OF CULTIVATORS.	Village.
1	Shamuddin Munshi	Nedharchar.
2	Alam Bepari	Ditto.
3	Mamudjan Sheik	Ditto.
4	Abdul Momin	Ditto.
5	Kengu Bepari	Ditto.
6	Asmat Sheikh	Charmaseanda.
7	Girish Chandra Deb	Khagdahar.
8	Sheikh Jabbar	Galgonda.
9	Sarip Sheikh	Khagdadhar.
10	Soma Seikh	Golgonda.
11	Galim Mandal	Balashpur.
12	Lecheri Sheikh	Raghurampur.
13	Budai Sheikh	Ditto.
14	Basanta Kumar Banerji	Manipur.
15	Abdul Mazid	Golgonda.
16	Radha Nath Dey Sirker	Maizbari.
17	Sheikh Samir	Ditto.
18	Mamud Ali Fakir	Kumirgota.
19	K. N. Chowdhury	Ditto.
20	Maulavi A. M. Abdulali Khan ...	Lakhimpur.
21	Munshi Samiruddin	Maizbari.
22	Bosiruddin	Ditto.
23	Nabin Chandra Saha	Ditto.
24	Jatu Sirkar	Kalyanpur.
25	Azim Sirkar	Takuria.
26	Nayebulla Sirkar	Ditto.
27	Shekendarali	Binnafair.
28	Piarulla	Ditto.
29	Atul Chandra Chakravarty	Gangatia.
30	Chandra Kumar Dey	Gobindapur.
31	Taripuddin	Mahonpur.
32	Aharia Sirkar	Ditto.
33	Abdul Sirkar	Ditto.
34	Bipin Chandra Roy	Narundi.
35	Baharuddin	Sreerampur.
36	Noyanuddin Sircar	Berpathalia.
37	Nahag Akanda	Ditto.
38	Shermahmud Sirkar	Ditto.
39	Rajib Jibun Chakravarty	Narundi.
40	Krish Chandra Dutta	Ranarampur.
41	Iswar Chandra Dutta	Ditto.
42	Woomesh Chandra Dey	Kochpur.
43	Prokash Chandra Dutt	Jamalpur.
44	Naim Sirker	Ditto.
45	Rafet Khalipa	Ditto.
46	Nanda Kumar Sen	Kumiri.
47	Hamiuddin Khan	Katli.
48	Hafuzuddin Khan	Do.
49	Elahi Noaz	Do.
50	Gopi Nath Chakravarty	Netrakona.
51	Surendra Ch. Choudhury	Rameshurpur.
52	Santi Charan Mozumdar	Thakurkona.
53	Munshi Ahamad	Shyamganj.
54	Manir Mandal	Ditto.
55	Umesh Ch. Chakravarty	Machihala.
56	Jogendra Ch. Chakravarty	Shibnagar.
57	Baktar Miah	Maizbari.

Names of cultivators trying paddy seeds supplied by the Economic Botanist against their own seeds.

BARISAL.

No.	NAMES OF CULTIVATORS.	Village.
1	Babu Abhoy Kumar Ghose	Ganapara.
2	Ismail Chawkidar	Ditto.
3	Sonamaddi	Ditto.
4	Abdul Haque	Charnoabad.
5	Sonamaddi	Sariktala.

List of persons trying Fibre Expert's jute seeds against their own jute seeds.

DACCA.

1	Bepin Behari Mandal	Juran.
2	Jaider Khan	Tatinibag.
3	Sheikh Jaru	Bhowalbag.
4	Jugal Singh	Manipur.
5	Rajendra Kumar Dutta	Soharchar.
6	Radha Charan Gope	Fatulla.
7	Sheikh Kadir	Galachipa.
8	Ramjan Ali	Bowapur.
9	Maniruddin	Tulatuli Huglakandi.
10	Munshi Abdul Rahim	Gagatia.
11	Meharali Madbar	Nayagaon.
12	Muzuffar Ali	Ditto.

MYMENSINGH.

1	Galim Mandal	Bolashpur.
2	Jabber Shaikh	Golgonda.
3	Soma Shaikh	Maizbari.
4	Mamin Shaikh	Khagdahar.
5	Srif Shaikh	Ditto.
6	Sifatulla Shaikh	Ditto.
7	Tazemuddin Master	Boyra.
8	Tazer Mandal	Do.
9	Pagu Khan	Do.
10	Taib Shaikh	Do.
11	Sonaulla Sircar	Takuria.
12	Ram Chandra Kaivarta	Binnafair.
13	Jinu Mandal	Boyra.
14	Sonaulla Shaikh	Binnafair.
15	Minu Mandal	Boyra.
16	Sharali Shaikh	Kamalpur.
17	Kailash Chandra Roy	Bhairabpur.
18	Budhai Shaikh	Ditto.
19	Bhairab Bepari	Ditto.
20	Pukai Hazi	Ditto.
21	Sobeder Bepari	Ditto.
22	Lalmamud Shaikh	Kamalpur.
23	Mamudali Sircar	Gochamara.
24	Achmatali Shaikh	Bhairabpur
25	Mamud Hossen	Gochamara.
26	Abal Hossen Shaikh	Ditto.
27	Achu Shaikh	Darichandiber.
28	Nazier Shaikh	Ditto.
29	Rahamat Hazi	Kamalpur.
30	Mamud Hossen Munshi	Bhairabpur.
31	Hosenali Shaikh	Ditto.

MYMENSINGH—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
32	Abul Hossen Sircar	Gochamara.
33	Nanda Kumar Sen	Kumree.
34	Santi Chandra Mazumdar	Thakurakona.
35	Bhusan Namasudra	Ditto.
36	Nrisendra Ch. Tapadar	Ditto.
37	Norendra Ch. Tapadar	Bangla.
38	Jogendra Ch. Chakravarty	Shibnagar.
39	Surendra Chandra Chowdhury ...	Rameswarpur.
40	Hafizuddin Khan	Katlee.
41	Surendra Chandra Shaha	Malini.
42	Atul Chandra Chakravarty	Gangatia.
43	Ditto ditto	Ditto.
44	Ditto ditto	Ditto.
45	Mayenuddin Shaikh	Jamalpur.
46	Naim Sircar	Ditto.
47	Mamud Shaikh	Ditto.
48	Akbar Mandal	Ditto.
49	Prokash Chandra Dutta	Ditto.
50	Umesh Chandra Dey	Ditto.
51	Mukunda Mohan Dutta	Paril.
52	Krishna Chandra Dutta	Ranarampur.
53	Shangsharali Sircar	Santia.
54	Razari Shaikh	Seelas.
55	Kudrat Shaik	Do.
56	Nazu Shaikh	Do.
57	Karim Sircar	Do.
58	Karim Sircar	Do.

* Result will be reported next year.

FARIDPUR.

1	Rahamtulla Munshi	Raghunandanpur.
2	Ismail Bepari	Ditto.
3	Arjan	Charkanda.
4	Sheikh Gani	Ditto.
5	Sheikh Rahim	Nurpur.
6	Parasulla Sheikh I	Binodepur.
7	Parasullah „ III	Ditto.
8	Parasulla Bepari	Char Binodepur.
9	Jatai Sheikh	Ditto.
10	Satish Chandra Roy	Khatra.
11	Dwarka Nath Roy	Do.
12	Mohon Malat	Enayetnagar.
13	Arsedali Sardar	Ditto.
14	Mostajuddi Malat	Ditto.
15	Satish Roy	Khatra.

BAKARGANJ.

No.	NAMES OF CULTIVATORS.	Village.
1	Nilkanta Deori	Madhabpasa.
2	Sonamaddi Chawkidar	Ichakati.
3	Ismail Chawkidar	Ditto.
4	Torap Ali	Ditto.
5	Nilkanta Deori	Madhabpasa.
6	Alimaddi Mridha	Saluka.*
7	Manajuddi	Badalpara.*
8	Mufajali	Ditto.
9	Alamaddi	Ditto.
10	Ismail	Ditto.

* Trying Nos. 4 and 7 against their own seeds.

Names of cultivators who are trying jute seeds Nos. 4 and 7 against their own seeds.

FARIDPUR.

1	Abbas Miah	Komarpur.
2	Panchanan Pramanik	Ditto.
3	Naimuddin Biswas	Chartipurakundi.

APPENDIX II.

RESULTS OF SEED SELECTION (JUTE).

Dacca.

(Seeds selected in 1913 and sown in 1914.)

No.	Names of cultivators.	Village.	AREA OF LAND.		DATE.		OUTTURN.		Difference of outturn.	PROFIT.	
			Selected.	Unselected.	Sowing.	Harvesting.	Selected.	Unselected.		Per plot.	Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K.	B. K.	1914	1914	MDS. S.	MDS. S. CH.	MDS. S. CH.	RS. A. P.	RS. A. P.
1	Raimohon Mistry ...	Pagla ...	1 0	1 0	2nd March ...	30th July ...	6 10	5 30 0	0 20 0	2 13 0	8 7 0
2	Pandav Biswas ...	Godnail ...	0 10	0 10	5th ,, ...	3rd August...	2 32	2 20 0	0 12 0	1 11 0	10 2 0
3	Pauchananda Mandal ...	Sumairpara ...	0 10	0 10	7th ,, ...	5th ,, ...	3 2	2 7 0	0 35 0	4 14 9	28 8 6
4	Shibcharan Sirkar ...	Ditto ...	1 0	1 0	12th ,, ...	7th ,, ...	6 20	5 34 0	0 26 0	3 10 6	10 15 6
5	Narain Bepari ...	Kayetpara ...	1 0	1 0	15th ,, ...	12th ,, ...	5 35	5 10 0	0 25 0	3 8 3	10 8 9
6	Pandav Haldar ...	Baruikhali ...	0 5	0 5	17th ,, ...	15th ,, ...	1 22	1 5 0	0 17 0	2 6 3	28 11 0
7	Hriday Manzi ...	Brahman Kitta ...	0 10	0 10	28th February	18th July ...	3 21	3 1 0	0 20 0	2 13 0	16 14 0
8	Bochai Sircar ...	Tegharia ...	1 0	1 0	2nd March ...	22nd ,, ...	5 27	5 0 0	0 27 0	3 12 9	11 6 3
9	Jayhari Mandal ...	Basbari ...	1 0	1 0	13th April ...	20th September	4 39	4 18 0	0 21 0	2 15 3	8 13 9
10	Harimohon Mandal ...	Sarail ...	0 10	0 10	1st March ...	23rd July ...	2 20	2 13 0	0 7 0	0 15 9	5 14 6
11	Madhab Mandal ...	Rathur ...	0 10	0 10	3rd ,, ...	3rd August...	3 12	2 29 0	0 23 0	3 3 9	19 6 6
12	Meghu Mandal ...	Baghia ...	1 0	1 0	26th February	2nd August...	4 15	4 13 0	0 2 0	0 4 6	0 13 6
13	Rammohon Mandal ...	Halibo ...	1 0	1 0	14th April ...	11th September	6 1	5 13 0	0 28 0	3 15 0	11 13 3
14	Ratan Barui ...	Surjanarainpur	1 10	1 10	1st March ...	12th July ...	8 39	8 12 0	0 27 0	3 12 9	11 6 3
15	Yakub Khan ...	Khilgaon ...	1 0	1 0	13th April ...	17th September	6 12	6 5 0	0 7 0	0 15 9	2 15 0
16	Krishna Kumar Madbar	Sudharchar ...	1 0	1 0	26th February	23rd August...	7 0	6 15 0	0 25 0	3 8 3	10 8 6
17	Imamaddin Madbar ...	Nayagaon ...	1 0	1 0	28th ,,	17th ,, ...	7 25	7 12 8	0 12 8	1 12 8	5 6 0
18	Monmohon Barui ...	Imamerchar ...	1 0	1 0	25th ,,	23rd ,, ...	6 5	5 35 8	0 9 8	1 5 11	4 1 9
19	Sasimohon Barui ...	Sudharchar ...	1 0	1 0	26th ,,	23rd ,, ...	8 3	7 30 0	0 13 0	1 13 9	5 7 9
20	Abdul Miah ...	Baruipara ...	1 0	1 0	23rd ,,	18th ,, ...	7 2	7 0 0	0 2 0	0 4 6	0 13 6
21	Dengar Khan ...	Kusumpur ...	1 0	1 0	3rd March ...	26th ,, ...	8 5	7 25 0	0 20 0	2 13 0	8 7 0
22	Dasarath Barui ...	Dabsa ...	1 0	1 0	6th ,, ...	22nd ,, ...	7 11	7 2 0	0 9 0	1 4 3	3 12 9
23	Dhanumaddin Sirkar ...	Shyamerchar ...	1 0	1 0	8th ,, ...	24th ,, ...	8 0	7 35 0	0 5 0	0 11 3	2 1 9
24	Sheikh Yasin ...	Kusumpur ...	1 0	1 0	3rd ,, ...	25th ,, ...	7 11	6 30 0	0 21 0	2 15 3	8 13 9
25	Araj Ali ...	Shialdi ...	1 0	1 0	22nd February	19th ,, ...	7 22	7 12 0	0 10 0	1 6 6	4 3 6

APPENDIX II—*contd.*

RESULTS OF SEED SELECTION (JUTE).

Mymensingh.

(Seeds selected in 1913 and sown in 1914.)

No.	NAME OF CULTIVATOR.	Village.	AREA OF LAND.		DATE.		OUTTURN.		Difference of outturn.	PROFIT.	
			Selected.	Unselected.	Showing.	Harvesting.	Selected.	Unselected.		Per plot.	Per area.
1	2	3	4	5	6	7	8	9	10	11	12
					1914.	1914.					
1	Akobali Duftry ...	Rajerbagh ...	0 6	0 6	3rd March ...	5th July ...	2 4	2 3 0	0 1 0	0 4	2 8 0
2	Akali Shaikh ...	Malauri ...	1 0	1 0	5th ,, ...	9th ,, ...	6 6	6 3 0	0 3 0	0 12	2 4 0
3	Easin Sirkar ...	Ashura ...	0 15	0 15	4th ,, ...	8th ,, ...	5 12	5 0 0	0 12 0	3 0	12 0 0
4	Kabit Munshi ...	Do. ...	0 12	0 12	6th ,, ...	6th ,, ...	4 12	4 10 0	0 2 0	0 8	2 8 0
5	Jennath Ali Ahamed ...	Akashi ...	1 4	1 4	7th ,, ...	10th ,, ...	7 22	7 5 0	0 17 0	4 4	10 10 0
6	Goba Shaikh ...	Do. ...	1 0	1 0	4th ,, ...	6th ,, ...	6 30	6 22 0	0 8 0	2 0	6 0 0
7	Rupa Mandal ...	Do. ...	0 12	0 12	9th ,, ...	13th ,, ...	3 37	3 33 0	0 4 0	1 0	5 0 0
8	Sam Mandal ...	Do. ...	0 15	0 15	5th ,, ...	15th ,, ...	5 10	4 34 0	0 16 0	4 0	16 0 0
9	Inauddin Ahamed ...	Kuralia ...	0 6	0 6	12th ,, ...	10th ,, ...	1 35	1 30 0	0 5 0	1 4	15 0 0
10	Intazuddin Khandkar ...	Dampara ...	0 9	0 9	15th ,, ...	16th ,, ...	2 27	2 5 0	0 22 0	5 8	36 10 8
11	Abdul Zabbar Kazi ...	Malauri ...	0 10	0 10	6th ,, ...	20th ,, ...	3 25	3 10 0	0 15 0	3 12	22 8 0
12	Taripuddin ...	Mohanpur ...	1 0	1 0	10th ,, ...	18th ,, ...	7 20	7 10 0	0 10 0	2 8	7 8 0
13	Ietulla Shaikh ...	Ditto ...	0 12	0 12	11th ,, ...	19th ,, ...	4 25	4 0 0	0 25 0	6 4	31 4 0
14	Mandul a Sarkar ...	Gorakanda ...	0 15	0 15	18th ,, ...	21st ,, ...	4 30	4 20 0	0 10 0	2 8	10 0 0
15	Namber Shaikh ...	Baropathalia ...	0 6	0 6	20th ,, ...	17th ,, ...	2 10	2 6 0	0 4 0	1 0	12 0 0
16	Nohe Shaikh ...	Ditto ...	0 9	0 9	9th ,, ...	12th ,, ...	3 20	3 15 0	0 5 0	1 4	8 5 4
17	Taezuddin ...	Ditto ...	0 15	0 15	7th ,, ...	10th ,, ...	4 15	4 10 0	0 5 0	1 4	5 0 0
18	Nazir Mandal ...	Ditto ...	1 0	1 0	21st ,, ...	24th ,, ...	7 8	7 5 0	0 3 0	0 12	2 4 0
19	Lone Mamud Sarkar ...	Godasimla ...	1 0	1 0	23rd ,, ...	22nd ,, ...	6 35	6 10 0	0 25 0	6 4	18 12 0
20	Nanda Kumar Sen ...	Kumree ...	0 15	0 15	19th ,, ...	27th ,, ...	5 22	5 12 0	0 10 0	2 8	10 0 0
21	Abdul Majid ...	Barshikora ...	0 15	0 15	20th ,, ...	24th ,, ...	4 30	4 20 0	0 10 0	2 8	10 0 0
22	Sonatan Shaha ...	Malini ...	0 12	0 12	22nd ,, ...	23rd ,, ...	3 20	3 10 0	0 10 0	2 8	12 8 0
23	Hamiduddir Khan ...	Katlee ...	0 10	0 10	25th ,, ...	27th ,, ...	2 22	2 10 0	0 12 0	3 0	18 0 0
24	Amchar Khan ...	Do. ...	0 10	0 10	1st April ...	30th ,, ...	2 35	2 30 0	0 5 0	1 4	7 8 0
25	Dhirendra Chandra Roy	Shibnagar ...	0 6	0 6	3rd ,, ...	30th ,, ...	2 10	2 10 0	...	...	...
26	Mahiuddin Moktear ...	Medini ...	1 0	1 0	26th March ...	1st August ...	6 30	6 30 0	..	...	...
27	Santi Charan Mazumdar	Thakorakona ...	0 12	0 12	1st April ...	3rd ,, ...	4 30	4 15 0	0 15 0	3 12	18 12 0
28	Gayanath Dey Sircar ...	Ditto ...	0 15	0 15	5th ,, ...	7th ,, ...	5 3	5 3 0	...	...	...
29	Bhusan Namasudra ...	Ditto ...	0 6	0 6	24th March ...	29th July ...	2 16	2 6 0	0 10 0	2 8	25 0 0
30	Kahin Serkar ...	Seelasi ...	1 0	1 0	26th ,, ...	1st August ...	6 18	6 3 0	0 15 0	3 12	11 4 0
31	Krishna Chandra Dey	Sneia ...	1 0	1 0	3rd April ...	6th ,, ...	7 20	7 20 0	...	...	...
32	Barkatulla Munshi ...	Seelasi ...	0 10	0 10	5th ,, ...	29th July ...	3 10	3 10 0	...	...	...
33	Abdul Rahaman Munshi	Charsallia ...	0 10	0 10	9th ,, ...	28th ,, ...	3 25	3 15 0	0 10 0	2 8	15 0 0
34	Ibrahim Sarkar ...	Bagua ...	0 10	0 10	7th ,, ...	24th ,, ...	3 25	3 20 0	0 5 0	1 4	7 8 0
35	Shamser Ali Sarkar ...	Charmaslanda ...	0 9	0 9	23rd March ...	29th ,, ...	3 10	3 5 0	0 5 0	1 4	8 5 4
36	Abdul Rahaman Sarkar	Bagua ...	0 12	0 12	25th ,, ...	23rd ,, ...	4 0	3 38 0	0 2 0	0 8	2 8 0
37	Elim Sarkar ...	Balaspur ...	0 15	0 15	26th ,, ...	5th ,, ...	5 35	5 20 0	0 15 0	3 12	15 0 0
38	Golim Mandal ...	Do. ...	0 9	0 9	3rd April ...	13th August ...	2 17	2 5 0	0 12 0	3 0	20 0 0
39	Setu Mandal ...	Golgonda ...	0 12	0 12	7th ,, ...	9th ,, ...	3 18	3 18 0	...	...	...
40	Jabbar Shekh ...	Do. ...	0 6	0 6	9th ,, ...	15th ,, ...	2 15	2 15 0	...	...	...
41	Abbas Ali Sarkar ...	Kallasen ...	0 15	0 15	10th ,, ...	16th ,, ...	3 36	3 33 0	0 3 0	0 12	3 0 0
42	Tami Munshi ...	Akua ...	1 0	1 0	15th ,, ...	12th ,, ...	7 0	6 15 0	0 25 0	6 4	18 12 0
43	Ismail Sarkar ...	Do. ...	0 9	0 9	29th March ...	3rd ,, ...	4 0	3 18 0	0 22 0	5 8	36 10 8
44	Makim Raj ...	Do. ...	0 12	0 12	31st ,, ...	1st ,, ...	3 30	3 25 0	0 5 0	1 4	6 4 0
45	Azu Sheikh ...	Salakia ...	0 15	0 15	6th April ...	9th ,, ...	4 39	4 22 0	0 17 0	4 4	17 0 0
46	Rusmat Shaikh ...	Ghatail ...	0 6	0 6	8th ,, ...	7th ,, ...	2 20	2 14 0	0 6 0	1 8	15 0 0
47	Sarat Ali Shaikh ...	Charsatkia ...	0 1	0 1	11th ,, ...	15th ,, ...	7 6	7 3 0	0 3 0	0 12	45 0 0
48	Mamudchan ...	Ghatail ...	0 15	0 15	9th ,, ...	13th ,, ...	5 24	5 24 0	...	...	...
49	Mamud Ali Shaikh ...	Do. ...	0 9	0 9	15th ,, ...	10th ,, ...	3 33	3 20 0	0 13 0	3 4	21 10 8
50	Azam Shaikh ...	Sredhorkhola ...	0 12	0 12	3rd ,, ...	5th ,, ...	4 38	4 30 0	0 8 0	2 0	10 0 0

RESULTS OF SEED SELECTION (PADDY).

Dacca.

Selected in 1913.

			B. K.	B. K.	1914	1914	Md. S.	Md. S. C.	Md. S. C.	Rs. A.	Rs. A. P.
1	Dengar Khan ...	Kusumpur ...	1 0	1 0	7th April ...	5th November	4 35	4 30 0	0 5 0	0 6 0	1 2 0
2	Sheikh Yasin ...	Ditto ...	1 0	1 0	8th ,, ...	7th ,,	4 10	4 0 0	0 10 0	0 12 0	2 4 0
3	Krishna Kumar Madbar	Sudharchar ...	1 0	1 0	10th ,, ...	8th ,,	3 20	3 1 0	0 19 0	1 6 9	4 4 3
4	Imamaddi Madbar ...	Nayagaon ...	1 0	1 0	25th ,, ...	12th ,,	6 4	6 0 0	0 4 0	0 4 9	0 14 3
5	Abdul Jubbar ...	Ditto ...	1 0	1 0	27th ,, ...	20th ,,	4 0	3 18 0	0 22 0	1 10 4	4 15 0
6	Basanta Kumar Dhal ...	Raipura ...	1 0	1 0	28th ,, ...	22nd ,,	4 20	4 10 0	0 10 0	0 12 0	2 4 0
7	Gulmamamud Talukdar	Chhatphaita ...	1 0	1 0	25th ,, ...	30th ,,	7 10	6 35 0	0 15 0	1 2 0	3 6 0
8	Mamnohan Moral (Mandai).	Garkulerchar ...	1 0	1 0	28th ,, ...	26th ,,	8 0	7 36 0	0 4 0	0 4 9	0 14 3
9	Muhammad Jiosh ...	Kusumpur ...	1 0	1 0	27th ,, ...	28th ,,	5 3	4 35 0	0 8 0	0 9 6	1 12 6
10	Hazrat Ali ...	Bagbari ...	1 0	1 0	30th ,, ...	29th ,,	3 12	3 5 0	0 7 0	0 8 3	1 8 9
11	Bochai Sirkar ...	Tegharia ...	1 10	1 10	10th March ...	8th December	7 12	6 28 0	0 24 0	1 12 9	3 9 6
12	Lakshmi Mistry ...	Ditto ...	1 0	1 0	10th ,, ...	8th ,,	4 20	4 1 0	0 19 0	1 6 9	4 4 3
13	Chandranath Sirkar ...	Ditto ...	1 0	1 0	10th ,, ...	9th ,,	4 15	4 0 0	0 15 0	1 2 0	3 6 0
14	Purna Mandal ...	Akrabari ...	0 10	0 10	9th ,, ...	8th ,,	2 5	1 39 0	0 6 0	0 7 3	2 11 6
15	Nawabali Sheikh ...	Solla ...	1 0	1 0	12th ,, ...	11th ,,	4 13	4 1 0	0 12 0	0 14 6	2 11 6
16	Rajmohon Mridha ...	Noadha ...	1 0	1 0	13th ,, ...	14th ,,	4 13	4 1 0	0 12 0	0 14 6	2 11 6
17	Monmohon Das ...	Pubdi ...	1 0	1 0	8th ,, ...	11th ,,	4 7	3 21 0	0 26 0	1 15 3	5 13 9
18	Ramsunder Bepari ...	Arakul ...	0 16	0 16	11th ,, ...	12th ,,	3 1	2 11 0	0 30 0	2 4 0	8 7 0

APPENDIX II—*concld.*

Results of Winter Paddy Seed Selection, 1914.

Mymensingh.

No.	Name of Cultivator.	Village.	Area.		Outturn.			Profit.	
			Selected.	Un-selected.	Selected.	Un-selected.	Difference.	Per plot.	Per acre.
			B. a.	B. a.	Md. s.	Md. s.	Md. s.	Rs. a. p.	Rs. a.
1	Sheikh Lalloo	Fulpukuria	0 5	0 5	0 5	1 0	0 5	0 8 0	4 8
2	Sona Bhanda	Do.	0 5	0 5	1 10	1 0	0 10	0 12 0	9 0
3	Rewat Ch. Pal	Singhdiker	0 5	0 5	2 0	1 0	1 0	0 12 0	9 0
4	Jalal Sheikh	Kalyanpur	0 5	0 5	2 10	1 5	1 5	1 2 0	16 8
5	Sheikh Shafiq	Fulpukuria	0 5	0 5	2 15	1 0	1 15	1 4 0	16 8
6	Sonatali	Bhatsankhipur	0 5	0 5	2 18	1 12	1 6	0 8 0	4 8
7	Bolai Chandra	Dudhgaon	0 5	0 5	3 0	1 12	1 8	0 14 3	5 7
8	Ramesh S. Chakravarty	Mymensingh	0 5	0 5	3 10	1 8	2 2	1 4 5	18 13
9	Tarik Sheikh	Fulpukuria	0 5	0 5	3 15	1 10	2 5	1 6 7	7 3
10	Lochan Shaikh	Bhatsankhipur	0 5	0 5	4 0	1 0	3 0	0 12 0	4 8
11	Bedel Shaikh	Do.	0 5	0 5	4 0	1 0	3 0	0 12 0	4 8
12	Jamir Sahad Biswas	Nandir	0 5	0 5	4 0	1 0	3 0	0 12 0	4 8
13	Abhoy Charan Saha	Do.	0 5	0 5	4 0	1 4	3 0	0 12 0	4 8
14	Sheikh Abdulmanik	Do.	0 5	0 5	4 10	1 7	3 3	0 14 3	5 7
15	Do. Mumtaz	Do.	0 5	0 5	4 10	1 0	3 10	1 0 0	8 0
16	Do. Khoda	Do.	0 5	0 5	5 0	1 0	4 0	1 2 0	8 8
17	Do. Nurullah	Do.	0 5	0 5	5 0	1 0	4 0	1 2 0	8 8
18	Do. Abdu	Do.	0 5	0 5	5 0	1 0	4 0	1 2 0	8 8
19	Golak Biswas	Kalikair	0 5	0 5	5 4	1 0	4 4	1 4 9	9 0
20	Jadu Sarkar	Do.	0 5	0 5	5 10	1 0	4 10	1 6 9	10 0
21	Ishwar Chandra Sarkar	Do.	0 5	0 5	6 0	1 0	5 0	1 8 9	11 0
22	Ramanikha Khandakar	Jamalpur	0 5	0 5	6 0	1 0	5 0	1 8 9	11 0
23	Gobind Dudhy	Sankar	0 5	0 5	6 0	1 0	5 0	1 8 9	11 0
24	Kalim Sarar	Nalpur	0 5	0 5	6 14	1 0	5 14	1 14 9	14 0
25	Amal Sarangee Sarar	Gouripur	0 5	0 5	7 0	1 0	6 0	1 16 9	14 8
26	Saran Ch. Bhowmik	Dakshindhan	0 5	0 5	7 10	1 0	6 10	2 0 9	15 8
27	Sushil Shaha	Mahal	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
28	Lalmoy Kumar Sal	Kanpur	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
29	Umesh Ch. Chowdhury	Barkhakia	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
30	Ramesh Ch. Chowdhury	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
31	Ashwinikha Khan	Kalia	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
32	Jalal Sarkar	Kanakur	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
33	Jamini Jha Sharma	Ramnagar	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
34	Nimai Ch. Dey Sarar	Kalikair	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
35	Radhanath Dey	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
36	Annadhan Pakir	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
37	Kanai Ch. Sarkar	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
38	Bhanu Sharma	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
39	Bimal Bhowmik	Ramgar	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
40	Ramadhan Sarkar	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
41	Anil Mandal	Sonakur	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
42	Nanda Sinha	Kandulia	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
43	Nimai Sarkar	Bahadurpur	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
44	Upen Kanti Acharjee	Gabsinga	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
45	Kalai Sinha	Kandulia	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
46	Jogendra Ch. Nag	Kalikair	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
47	Prem Ch. Pal	Dhal	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
48	Ramesh Ch. Dey	Kanpur	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
49	Jamini Bhusan Pal	Do.	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8
50	Kala Shaikh	Kalikair	0 5	0 5	8 0	1 0	7 0	2 2 9	16 8

APPENDIX III.

List of persons who have selected paddy seeds for trial in 1915.

DACCA.

No.	NAMES OF CULTIVATORS.	Village.
1	Zulan Singh	Manipur.
2	Chandranath Deb Sarma	Ditto.
3	Din Munjuri	Ditto.
4	Ramgopal Singh	Ditto.
5	Gopal Singh	Ditto.
6	Gun Singh	Ditto.
7	Shekhar Singh	Ditto.
8	Patan Singh	Ditto.
9	Sagir Mahmud	Markoon.
10	Sheikh Kerali	Nayaganj.
11	Radha Charan Mistry	Sarail.
12	Bepin Behari Mandal	Jaran.
13	Asananda Mandal	Basbari.
14	Krishna Charan Chowkidar ...	Ditto.
15	Dwijaraj Mondal	Ditto.
16	Pyari Mohan Mondal	Ditto.
17	Sheikh Nabi	Gharialbari.
18	Pyari Mohan Chowkidar	Khamer.
19	Sheikh Jahar Ali	Ditto.
20	Nasu Prodhania	Kapasia.
21	Tamijuddin	Jamirarchar.
22	Kamini Kumar Mullick	Brahmangdi.
23	Sheikh Munshi	Baniachal.
24	Asgar Ali	Brahmundi.
25	Abbas	Ghoradia.
26	Ali Maddin Bhuiya	Reranpara.
27	Shahebali	Velanagar.
28	Nowbali	Brahmandi.
29	Jamani Kumar Mullick	Ditto.
30	Jagat Chandra Dey	Shilmandi.
31	Akshoy Kumar Bal	Kalagachhia.
32	Muhammad Hafizuddin	Sallabaz.
33	Munsoor Ali	Nilukha.
34	Ibrahim Kazi	Ditto.
35	Abdul Rahim	Gagatia.
36	Maniruddin	Daulatkandi.
37	Sabed Ali	Sapmara.
38	Saritulla Sirkar	Huglakandi.
39	Abdul Wahed	Gakulnagar.
40	Easin Munshi	Koroipur.
41	Tamiruddin	Haglakandi.
42	Radha Charan Gope	Fatulla.
43	Gadadhar Mistry	Pagla.
44	Raimohon Mistry	Kamalpur.
45	Rajendra Kumar Datta	Sheharchar.
46	Guru Prasad Mistry	Nayamati.
47	Judhistir Poddar	Pagla.
48	Prosanna Sirkar	Baila.
49	Ram Charan Mistry	Godnail.
50	Ekinali	Kusumpur.
51	Rehajuddin	Ditto.
52	Dengar Khan	Ditto.
53	Sheikh Manu	Tengariapara.
54	Sheikh Wahed	Kusumpur.
55	Arajali	Shialdi.
56	Sheikh Nasaruddin	Kusumpur
57	Sheikh Latu	Ditto.
58	Badshahi Haldar	Purbagaon.

APPENDIX III—*contd.*

DACCA—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
59	Krishnakumar Madbar	Sudherchur.
60	Hari Mandal	Sridhar khola.
61	Panchanando Mandal	Ditto.
62	Gosaidas Mandal	Ditto.
63	Sachai Mandal	Ditto.
64	Sona Mullah	Rashkati.
65	Rupnuddi Sheikh	Ditto.
66	Maijuddi Sheikh	Ditto.
67	Sheikh Meherali	Baligaon.
68	Alhadi Mulla	Ditto.
69	Bakshi Mahomed	Ditto.
70	Sonatan Mandal	Angaira.
71	Nanda Mandal	Do.
72	Prohlad Mandal	Kanainagar.
73	Bhuban Mandal	Bhakum.
74	Kokaram Mandal	Do.
75	Sarbesh Khan	Do.
76	Lalbehari Kaviraj	Chakighata.
77	Gaynath Bepari	Ditto.
78	Shibnath Bepari	Ditto.
79	Janakinath Sirkar	Kristapur.

MYMENSINGH.

1	Jabber Shaikh	Golgonda.
2	Setu Mandal	Ditto.
3	Girish Chandra Dev	Khagdahar.
4	Jabu Sircar	Kalyanpur.
5	Sharif Shaikh	Khagdahar.
6	Somedali Shaikh	Ramgopalpur.
7	Rohim Chopdar	Darnapur.
8	Basanta Kumar Chakravarty ...	Maminpur.
9	Tarip Shaikh	Pailamari.
10	Lechuri Shaikh	Raghurampur.
11	Budai Shaikh	Ditto.
12	Abdul Wahed Bepari	Solakia.
13	Abhoy Chandra Sukladas	Ditto.
14	Shaikh Abdul Mazid	Ghaital.
15	Shaikh Mamudali	Ditto.
16	Abbash Shaikh	Ditto.
17	Shaikh Sayedali	Ditto.
18	Akali Shaikh	Malauri.
19	Kabil Munshi	Ashura.
20	Easin Sircar	Ditto.
21	Jinnat Ali Ahamed	Akhshi.
22	Intaz Ali Khandakar	Dampara.
23	Akebali Duftry	Malauri.
24	Kalim Sircar	Seelashi.
25	Abdul Rahaman Sircar	Charsaltia.
26	Santi Chandra Mazumdar	Thakurakona.
27	Sonatan Shaha	Malini.
28	Akshoy Kumar Sen	Kumree.
29	Umesh Chandra Chakravarty ...	Machahala.
30	Keshab Chandra Chakravarty ...	Ditto.
31	Hafizuddin Khan	Katlee.
32	Jalim Sircar	Naogaon.
33	Ramhari Dey Sircar	Manashura.

APPENDIX III—*contd.*

MYMENSINGH—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
34	Girish Chandra Dey Sircar	Maijbari.
35	Radha Nath Dey	Ditto.
36	Elimaddin Fakir	Ditto.
37	Nabin Chandra Shaha	Ditto.
38	Meher Shaikh	Ditto.
39	Munshi Rahamatulla	Mrizapur.
40	Mamudjan Shaikh	Ditto.
41	Mamudjan Shaikh	Bairan.
42	Arib Mandal	Goraikuti.
43	Abdul Shaikh	Kandulia.
44	Sobed Shaikh	Bohadorpur.
45	Tarak Nath Acharjee	Malatipur.
46	Maifal Shaikh	Kakuria.
47	Digendra Chandra Nag	Kalibari.
48	Purna Chandra Pal	Ditto.
49	Mahesh Chandra Dey	Kojgor.
50	Gobinda Kishore Kar	Ditto.
51	Kalu Shaikh	Kakuria.
52	Girish Chandra Dey	Darifatepur.
53	Fatik Chandra Das	Joyrajpur.
54	Naim Sircar	Jamalpur.

FARIDPUR.

1	Maulvi Mahamad Ekram	Kamalapur.
2	Maulvi Muhamad Ekram	Ditto.
3	Maulvi Abdul Gafur	Kajuri.
4	Maulvi Abdul Gafur	Do.
5	Maulvi Abdul Gafur	Do.
6	Sefatulla Haxi	Charkamalapur.
7	Sefatulla Haxi	Ditto.
8	Abdul Hamid	Nurpur.
9	Abdul Monnaf	Do.
10	Shaikh Manik	Do.
11	Shek Pachu	Do.
12	Arjun Mattabbar	Charkanda.
13	Chaijaddi	Nurpur.
14	Shaikh Rahim	Do.
15	Eakub Shaikh	Do.
16	Moran Chaudhury	Do.
17	Paresulla Shek I	Benodepur, Rajbari.
18	Paresulla Shek II	Ditto.
19	Paresulla Bepari	Ditto.
20	Jatai Sheikh	Ditto.
21	Derajaddi Shek	Ditto.
22	Manik Mandal	Ditto.
23	Salimuddin Sardar	Dadshi, Rajbari.
24	Jeran Mella	Ujanchar, Goalando.
25	Hem Chandra Joardar	Manirampur, Jasai.
26	Sadaraddin Molla	Chorjhikari, Habashpur.
27	Daori Chowkidar	Mohiserchor, Madaripur.
28	Adu Mala	Ditto.
29	Madan Bepari	Ditto.
30	Easin Sakdar	Ditto.
31	Jaynaddin Hazi	Ditto.
32	Pachu Kazi	Lakhiganj, Madaripur.
33	Hachanaddi Bepari	Ditto.
34	Mofizaddin Kazi	Ditto.

APPENDIX III—*contd.*

FARIDPUR—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
35	Mohan Malat	Enayetnagor, Kalkini.
36	Arshedali Sardar	Ditto.
37	Kanai Lal Biswas	Khatra, Gopalganga.
38	Tilak Chandra Bala	Karalgati.
39	Kali Charan Biswas	Aripara.
40	Har Chand Bhabak	Karalgati.
41	Nibaron Majhi	Do.
42	Akrur Chandra Barai	Do.
43	Kamala K. Kapali	Manikpur.
44	Madan Kapali	Do.
45	Ram Charan Kapali	Do.
46	Ram Das Kapali	Do.
47	Prasanna Kapali	Do.
48	Lakhi Kanta Kapali	Do.
49	Katiswar Biswas	Char Madhupur.
50	Jajneswar Biswas	Gopalpur.
51	Kanai Lal Biswas	Do.
52	Indra Nath Biswas	Do.

BAKARGANJ.

1	Babu Abhoy Kumar Ghosh	Ganapara.
2	Babu Abhoy Kumar Ghosh	Ditto.
3	Babu Abhoy Kumar Ghosh	Ditto.
4	Ismail Chawkidar	Ichakati.
5	Abdul Gani	Bagora.
6	Umarali Chaprasi	Do.
7	Nawab Gazi	Do.
8	Rahimaddi	Do.
9	Hachanaddin	Rupatali.
10	Jahiruddin Mirdha	Ditto.
11	Abdul Haque	Charnoabad.
12	Golam Khalek	Ditto.
13	Golam Khalek	Ditto.
14	Abdul Latiff	Ditto.
15	Abdul Haque. II	Ditto.
16	Jobadali	Sariktala.
17	Sonamaddi	Ditto.
18	Alemdar Khan	Ditto.
19	Abdul Khan	Ditto.
20	Aminaddi	Ditto.
21	Tassimuddin	Ditto.
22	Ahadali Gazi	Ditto.
23	Maher Ali	Ditto.
24	Gahar Ali	Ditto.
25	Majan Ali	Ditto.

APPENDIX III—*contd.*

List of persons who have selected jute seeds for trial in 1915.

DACCA.

No.	NAMES OF CULTIVATORS.	Village.
1	Sheikh Kerali	Nayagaon.
2	Sagir Mahmud	Markoon.
3	Sheikh Jaru	Bhowalbag.
4	Kazimuddin	Teribazar.
5	Mirshab	Daniadar.
6	Abbas Bhuiya	Ditto.
7	Jugal Sing	Manipur.
8	Sheikh Nizam	Companibag.
9	Khoda Newaz Khan	Tallabag.
10	Huchani	Koshkhana.
11	Krishna Chandra Chowkidar	Basbari.
12	Asananda Mandal	Do.
13	Rameswar Mandal	Nalban.
14	Hiralal Mandal	Do.
15	Gadadhar Mistry	Do.
16	Bepin Behary Mandal	Juran.
17	Aswathama Mandal	Sarail.
18	Govrchand Das	Bangia Howla.
19	Kaitann Ghesari	Ditto.
20	Pitambar Chowkidar	Gokulnagar.
21	Tamijuddin Mullah	Jamirer char.
22	Fulmahmad Sheikh	Khamer.
23	Monmohan Das	Do.
24	Abdul Gafur	Mununia.
25	Karim Bux	Mununia.
26	Advait Bepari	Do.
27	Raimohan Mandal	Deoli.
28	Mocktal Hossein	Basalia.
29	Sheikh Kadam Ali	Garalia.
30	Nandalal	Benttia.
31	Charan Das	Do.
32	Jaidar Khan	Tatinibag.
33	Kamini Kumar Mullick	Brahmandi.
34	Kalim Hossien	Daspara.
35	Sheikh Munshi	Baniachal.
36	Shaheb Ali	Velanagar.
37	Hakim Khan	Chinishpur.
38	Abbas	Ghoradra.
39	Shahjehan	Puranpara.
40	Shalim Sheik	Shilmandi*.
41	Talmahmud	Mahisasura*.
42	Ibrahim	Santivela*.
43	Maniruddin	Daulatkandi.
44	Samiruddin	Huglakandi.
45	Jamiruddin	Do.
46	Sabed Ali	Sapmara.
47	Rechmat Ali	Daulatkandi.
48	Easin Munshi	Koroipur.
49	Mohim Sheikh	Huglukandi.
50	Abdul Gaffur	Gauripur.
51	Sanud	Nilukha.
52	Muhammad Hafizuddin	Do.
53	Radhacharan Gope	Fatulla.
54	Jabar Ali	Do.
55	Rajendra Chandra Dutt	Shebaachar.
56	Guru Prosad Mistry	Nayamati.
57	Prosanna Sirkar	Balia.

* These cultivators have not sown jute.

APPENDIX III—*contd.*

DACCA—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
58	Ramcharan Mistry...	Godnail.
59	Pandav Biswas	Do.
60	Gadadhar Mistry	Pagla.
61	Raimohon Mistry	Kamalpur.
62	Shibcharan Sirkar	Sunavipara.
63	Baburali Khan	Chhatphaita.
64	Krista Kumar Mandal	Sudharchar.
65	Radhacharan Mandal	Imamerchar.
66	Syed Ali	Nayagaon.
67	Yakub Ali	Charkewar.
68	Dengar Khan	Kusumpur.
69	Shaikh Latu.	Ditto.
70	Bidhu Shaikh	Tengariapara.
71	Araj Ali	Shialdi.
72	Nasaruddin	Kasumpur.
73	Sontan Mandal	Angaira.
74	Nandu Mandal	Ditto.
75	Prohlad Mandal	Kanainagar.
76	Bhuban Mandal	Bhakum.
77	Kokaram Mandal	Ditto.
78	Sarbesh Khan	Ditto.
79	Lalbehari Kaviraj	Chakighata.
80	Gayanath Bepari	Ditto.
81	Shibnath Bepari	Ditto.
82	Janaki Nath Sirkar	Kistapur.

MYMENSINGH.

1	Galim Mandal	Balaspur.
2	Jabbar Sheikh	Golgonda.
3	Somi Sheikh	Mirjapur.
4	Mamin Sheikh	Khagdahar.
5	Sharif Sheikh	Ditto.
6	Sifatulla Sheikh	Ditto.
7	Tajimuddin Mastar	Boyra.
8	Tajer Mandal	Do.
9	Pegu Khan	Do.
10	Tayeb Sheikh	Do.
11	Sonaulla Sarkar	Thakuria.
12	Ram Charan Kaibarta	Binnafair.
13	Tuni Mandal	Boyra.
14	Sonaullah Sheikh	Binnafair.
15	Minu Mandal	Boyra.
16	Saharali Sheikh	Kamalpur.
17	Kailas Chandra Roy	Bhairabpur.
18	Budhai Sheikh	Ditto.
19	Bhairab Bepari	Ditto.
20	Pukrai Hazi	Ditto.
21	Sabedar Bepari	Ditto.
22	Lalmahmud Sheikh	Kamalpur.
23	Mahmud Ali Sarkar	Gochamara.
24	Achmat Ali Sheikh	Bhairabpur.
25	Mahmud Hossein	Gochamara.
26	Abdul Hossein	Ditto.
27	Achu Sheikh	Ditto.
28	Nazir Sheikh	Ditto.
29	Rachmat Hazi	Kamalpur.

APPENDIX III—*contd.*

MYMENSINGH—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
30	Mahmud Ali Hossein	Bhairabpur.
31	Hosen Ali Sheikh	Ditto.
32	Nanda Kumar Sen	Kumri.
33	Santi Charan Mazumdar	Thakurakona.
34	Bhushan Namasudra	Ditto.
35	Nirendra Tarafdar	Ditto.
36	Narendra Tarafdar	Bangla.
37	Jogesh Chakravarty	Shibnagar.
38	Suresh Chandra Chaudhuri	Rameshwarpur.
39	Haffizuddin Khan	Katlee.
40	Surendra Chandra Sha	Malini.
41	Atul Chandra Chakravarty	Gungatia.
42	Atul Chandra Chakravarty	Ditto.
43	Atul Chandra Chakravarty	Ditto.
44	Mainuddin Sheikh	Zamalpur.
45	Naim Sarkar	Ditto.
46	Mahmud Sheikh	Ditto.
47	Akbar Mandal	Ditto.
48	Prokash Chandra Dutta	Ditto.
49	Umesh Chandra De	Ditto.
50	Mukunda Mohan Dutta	Parail.
51	Krishna Chandra Dutta	Ranarampur
52	Sahar Ali Sirkar	Santai.
53	Bazoi Sheikh	Shilashi.
54	Kudrat Sheikh	Ditto.
55	Mazu Sheikh	Ditto.
56	Kalim Sirkar	Ditto.
57	Kalim Sirkar	Ditto.

FARIDPUR.

1	Rahamatulla Munshi	Kamarpur.
2	Ismail Bepari	Raghunandanpur.
3	Iachin Mandal	Ditto.
4	Rahamatulla Munshi	Ditto.
5	Iachin Mandal	Ditto.
6	Abdul Wahed Jotedar	Kamarpur.
7	Eakub	Nurpur.
8	Aijaddir	Do.
9	Sheikh Neda	Do.
10	Sheikh Panchu	Do.
11	Asaledi	Do.
12	Sukur Mann	Do.
13	Akhiladdi	Do.
14	Manik Mandal	Benodepur.
15	Salimaddin Sardar	Dadshi.
16	Juran Mollah	Ujanchar.
17	Hem Chandra Joardar	Manirampur.
18	Sadaruddin Mullah	Char Jhikari.
19	Mohan Malat	Enayetnagar.
20	Arshedali Sardar	Ditto.
21	Mostajuddi Malat	Ditto.
22	Rajanaddi Bepari	Chralepur.
23	Joynal Mirdha	Enayetnagar.
24	Daori Chowkidar	Mohisharchar.
25	Adu Mullah	Ditto.
26	Madan Bepari	Ditto.
27	Easin Sikdar	Ditto.
28	Serajuddin Hazi	Ditto.

APPENDIX III—*concld.*

FARIDPUR—*concld.*

No.	NAMES OF CULTIVATORS.	Village.
29	Kamala Kumar Kapali	Manikpur.
30	Ram Charan Kapali	Ditto.
31	Prosonna Kumar Kapali	Ditto.
32	Charu Mohan Roy	Girishnagar.
33	Dwarka Nath Roy	Khatra.
34	Dr. S. M. Bose	Gopalganj.
35	Tarak Chandra Mandal	Ditto.
36	Madan Kapali	Manikpur.
37	Ramdas Kapali	Ditto.
38	Lakshmikanta Kapali	Ditto.
39	Kutiswar Biswas	Char Madhupur.

APPENDIX IV.

EFFECT OF BONEMEAL (APPLIED IN 1914) ON JUTE.

Dacca.

No.	Name of Cultivator.	Village.	AREA OF LAND.		Quantity of manure.	OUTTURN (1913).		Difference of outturn.	Price of outturn.	Cost of manure.	PROFIT	
			Manured.	Unmanured.		Manured.	Unmanured.				Per plot.	Per acre.
			B. K. CH.	B. K. CH.	M. S. CH.	M. S. CH.	M. S. CH.	M. S. CH.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Joyhari Mandal	Basbari ...	1 0 0	1 0 0	1 0 0	6 11 0	5 13 0	0 38 0	5 5 6	3 0 0	2 5 6	7 0 6
2	Sheikh Baser	Maneswar ...	0 10 0	0 10 0	0 20 0	3 18 0	2 28 0	0 30 0	4 3 6	1 8 0	2 11 6	16 5 0
3	Sheikh Ali Newaj	Ditto ...	0 10 0	0 10 0	0 20 0	3 1 0	2 11 8	0 29 8	4 2 4	1 8 0	2 10 4	15 14 0
4	Moctal Hossein	Basalia ...	1 0 0	1 0 0	1 0 0	7 5 0	6 11 4	0 33 12	4 12 0	3 0 0	1 12 0	5 4 0
5	Joyhari Mandal	Basbari ...	1 10 0	1 10 0	1 20 0	9 25 0	8 13 0	1 12 0	7 5 0	4 8 0	2 13 0	5 10 0
6	Asananda Moudal	Ditto ...	1 10 0	1 10 0	1 20 0	10 18 0	8 11 0	2 7 0	12 3 9	4 8 0	7 11 9	15 7 6
7	Krista Chowkidar	Ditto ...	1 0 0	1 0 0	1 0 0	6 22 0	5 1 0	1 21 0	8 9 3	3 0 0	5 9 3	16 11 9
8	Sahadeb Mandal	Sultanganj ...	1 0 0	1 0 0	1 0 0	5 9 0	4 1 8	1 7 8	6 10 11	3 0 0	3 10 11	11 0 9
9	Durga Charan Mandal ...	Jaffrabad ...	1 0 0	1 0 0	1 0 0	4 16 8	2 13 12	2 2 12	11 10 3	3 0 0	8 10 3	25 14 9
10	Sheikh Basor	Maneswar ...	0 10 0	0 10 0	0 20 0	3 13 0	2 15 0	0 38 0	5 5 6	1 8 0	3 13 6	*23 1 0
11	Sheikh Ali Newar ...	Ditto ...	0 10 0	0 10 0	0 20 0	2 29 0	1 18 0	1 11 0	7 2 9	1 8 0	5 10 9	34 10 6

APPENDIX IV—*contd.*

Effect of bonemeal (applied in 1913-14) on winter paddy.

Dacca.

Name.	Quantity of bonemeal used.	Land measured.	Results obtained.
	Maunds.	Bighas.	
Fajee	5	5	Obtained nearly 4½ maunds of paddy per bigha from unmanured plots, while nearly 6 maunds of paddy per bigha from the manured plots.
Nizam	5	5	Obtained nearly 4½ maunds per bigha from the unmanured plots, while about 6 maunds per bigha from the manured plots.
Badal	8	8	Obtained nearly 4½ maunds per bigha from the unmanured plots, while nearly 6½ maunds from the manured plots. One of these plots practically yielded no crops, 2—3 previous years. On the application of bonemeal he got nearly 6 maunds of paddy per bigha from that particular plot
Aziz	5	5	Obtained from the unmanured plots nearly 1½ maunds paddy in excess (per bigha) from the yield by the unmanured plots.
Korombawar ...	5	5	Obtained from the manured plots nearly 2 maunds in excess per bigha. One of his plots practically yielded no crops, 2—3 previous years. On applying bonemeal he got nearly 5 maunds of paddy per bigha from that particular plot.
Katun	5	5	Obtained an excess of about 1½ maunds of paddy per bigha from the manured plots.
Chiful	1	1	Ditto. ditto.
Ahun	3	3	Ditto. ditto.
Omarali	3	3	Ditto. ditto.
Ahmadali No. I ..	2	2	Obtained an excess of nearly 2 maunds of paddy per bigha from the manured plots.
Syedali	3	3	Ditto. ditto.
Ahamadali No. II ...	2	2	Obtained an excess of nearly 1½ maunds of paddy per bigha from the manured plots.
Chamir	3	3	Ditto. ditto.
Munshi	50	3	.....

APPENDIX IV—*concld.*

No.	NAME OF CULTIVATOR.	Village.	AREA OF LAND.		Quantity of manures.	OUTTURN.		Difference of outturn.	Price of outturn.	Cost of manure.	PROFIT.	
			Manured.	Unmanured.		Manured.	Unmanured.				Per plot.	Per acre.

EFFECT OF BONEMEAL (APPLIED IN 1914) ON JUTE.

Mymensingh.

				B. K. C.	B. K. C.	M. S. C.	M. S. C.	M. S. C.	M. S. C.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Tarini Kanta Chaki	...	Maijbari ...	2 10 0	2 10 0	2 20 0	14 10 0	13 7 0	1 3 0	10 12 0	7 8 0	3 4 0	3 14 3
2	Tazimuddin Ahamed	...	Rudrabayra ...	2 10 0	2 10 0	2 20 0	13 90 0	12 17 0	1 3 0	10 12 0	7 8 0	3 4 0	3 14 3
3	Tazimudddin Mandal	...	Ditto ...	0 10 0	0 10 0	0 20 0	2 30 0	2 20 0	0 10 0	2 8 0	1 8 0	1 0 0	6 0 0
4	Jabedali Mandal	...	Ditto ...	0 10 0	0 10 0	0 20 0	2 28 0	2 16 0	0 12 0	3 0 0	1 8 0	1 8 0	9 0 0
5	Akbar Mandal	...	Ditto ...	1 0 0	1 0 0	1 0 0	5 12 0	4 30 0	0 22 0	5 8 0	3 0 0	2 8 0	7 8 0
6	Piarulla Mandal	...	Ditto ...	2 10 0	2 10 0	2 20 0	13 0 0	11 10 0	1 30 0	17 8 0	7 8 0	10 0 0	20 0 0
7	Talebali Sircar	...	Chakshyamram-pur.	1 0 0	1 0 0	1 0 0	4 0 0	3 11 0	0 29 0	7 4 0	3 0 0	4 4 0	12 12 0
8	Farmanali†	...	Ditto ...	1 0 0	1 0 0	1 0 0	3 20 0	...	...	...	...	...	...
9	Rahamat Bepari	...	Ditto ...	1 0 0	1 0 0	1 0 0	3 30 0	2 20 0	1 10 0	12 8 0	3 0 0	9 8 0	28 8 0
10	Isaf Shaikh	...	Ditto ...	1 0 0	1 0 0	1 0 0	3 5 0	2 20 0	0 25 0	6 4 0	3 0 0	3 4 0	9 12 0
11	Jamanali Sircar†	...	Poranganj ...	1 0 0	1 0 0	1 0 0	21 3 0	...	...	...	...	...	...
12	Iadali Shaikh†	...	Baignabari ...	1 0 0	1 0 0	1 0 0	4 10 0	...	...	...	...	...	...
13	Manu Shaikh†	...	Ditto ...	1 0 0	1 0 0	1 0 0	5 0 0	...	...	...	...	...	...
14	Samiruddin Munshi	...	Maijbari ...	1 0 0	1 0 0	1 0 0	6 10 0	5 30 0	0 20 0	5 0 0	3 0 0	2 0 0	6 0 0
15	Araman Sircar	...	Kushtia ...	1 0 0	1 0 0	1 0 0	4 20 0	3 30 0	0 30 0	7 8 0	3 0 0	4 8 0	13 8 0
16	Shaikh Bazu	...	Do. ...	1 0 0	1 0 0	1 0 0	3 20 0	2 30 0	0 30 0	7 8 0	3 0 0	4 8 0	13 8 0

† Ploughed and transplanted winter paddy.

EFFECT OF BONEMEAL (APPLIED IN 1914) ON WINTER PADDY.

Mymensingh.

				B. K. C.	B. K. C.	M. S. C.	M. S. C.	M. S. C.	M. S. C.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Samiruddin Munshi	..	Maijbari ...	0 10 0	0 10 0	0 20 0	3 28 8	2 38 8	0 30 0	2 4 0	1 8 0	0 12 0	4 8 0
2	Munshi Amiruddin	...	Goraikuli ...	1 0 0	1 0 0	1 0 0	4 13 5	3 0 0	1 13 5	4 0 0	3 0 0	1 0 0	3 0 0
3	Munshi Amiruddin	...	Ditto ...	0 5 0	0 5 0	0 10 0	2 20 0	2 0 0	0 20 0	1 8 0	0 12 0	0 12 0	9 0 0
4	Taibali Sircar	...	Chakshamram-pur.	0 15 0	0 15 0	0 30 0	6 0 0	5 0 0	1 0 0	3 0 0	3 4 0	0 12 0	3 0 0
5	Forman Bepari	...	Ditto ...	1 0 0	1 0 0	1 0 0	6 10 0	4 20 0	1 30 0	5 4 0	2 0 0	2 4 0	6 12 0
6	Mafizuddin Sircar	...	Chakhasadia	0 10 0	0 10 0	0 20 0	4 0 0	3 4 0	0 36 0	2 11 3	1 8 0	1 3 3	7 3 6
7	Shaikh Manu‡	...	Baignabari ...	1 0 0	1 0 0	1 0 0	...	...	...	...	...	...	...
8	Tarak Nath Acharjee	..	Mahatipur ...	1 0 0	1 0 0	1 0 0	4 30 0	3 4 0	1 26 0	4 15 3	3 0 0	1 15 3	5 13 9
9	Sheku Bepari	...	Kushtia ...	0 10 0	0 10 0	0 20 0	7 0 0	6 0 0	1 0 0	3 0 0	1 8 0	1 8 0	9 0 0
10	Makim Shaikh	...	Do. ...	1 0 0	1 0 0	1 0 0	5 20 0	4 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
11	Shaik Peru	...	Seelasi ...	1 0 0	1 0 0	1 0 0	8 10 0	6 30 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
12	Abdul Sircar	...	Bagua ...	1 0 0	1 0 0	1 0 0	5 30 0	4 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
13	Kalimuir Sikari	...	Do. ...	0 15 0	0 15 0	0 30 0	5 30 0	4 30 0	1 0 0	3 0 0	2 4 0	0 12 0	3 0 0
14	Kudrat Fakir	...	Saltia ...	1 0 0	1 0 0	1 0 0	5 10 0	3 30 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
15	Jafarali Munshi	...	Solakia ...	0 15 0	0 15 0	0 30 0	5 10 0	4 0 0	1 10 0	3 12 0	2 4 0	1 8 0	6 0 0
16	Abdul Shaikh	...	Charsaltia ...	1 10 0	1 10 0	1 20 0	8 30 0	6 25 0	2 5 0	6 0 0	4 8 0	1 14 0	3 12 0
17	Abdul Sircar	...	Bagua ...	2 0 0	2 0 0	2 0 0	15 30 0	3 10 0	2 20 0	7 8 0	6 0 0	1 8 0	2 4 0
18	Abdul Sircar	...	Do. ...	0 15 0	0 15 0	0 30 0	5 30 0	4 20 0	1 10 0	3 12 0	2 4 0	1 8 0	6 0 0
19	Gani Mamud Sircar	...	Do. ...	1 0 0	1 0 0	1 0 0	6 30 0	5 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
20	Denat Akanda	...	Barabani ...	1 0 0	1 0 0	1 0 0	6 20 0	5 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
21	Sonaullah Sircar	...	Do. ...	1 0 0	1 0 0	1 0 0	5 30 0	4 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
22	Muhammad Hossen Sircar		Bara ...	1 0 0	1 0 0	1 0 0	7 20 0	6 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
23	Muhammad Hossen Sircar		Do. ...	1 0 0	1 0 0	1 0 0	7 10 0	6 0 0	1 10 0	3 12 0	3 0 0	0 12 0	3 0 0
24	Paran Mandal	...	Do. ...	1 0 0	1 0 0	1 0 0	6 30 0	5 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
25	Paran Mandal	...	Do. ...	1 0 0	1 0 0	1 0 0	6 20 0	5 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
26	Hosenali Master	...	Do. ...	1 0 0	1 0 0	1 0 0	7 10 0	6 0 0	1 10 0	3 12 0	3 0 0	0 12 0	3 0 0
27	Hosenali Master		Do. ...	0 10 0	0 10 0	0 20 0	4 30 0	3 30 0	1 0 0	3 0 0	1 8 0	1 8 0	9 0 0
28	Farid Khan	...	Do. ...	0 10 0	0 10 0	0 20 0	3 35 0	3 0 0	0 35 0	2 10 0	3 8 0	1 2 0	6 12 0
29	Santi Chandra Muzumdar		Thakurakona	1 0 0	1 0 0	1 0 0	5 20 0	4 0 0	1 20 0	4 8 0	1 0 0	1 8 0	4 8 0
30	Santi Chandra Muzumdar		Ditto ...	1 0 0	1 0 0	1 0 0	6 30 0	5 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
31	Santi Chandra Muzumdar		Ditto ...	1 0 0	1 0 0	1 0 0	5 20 0	4 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
32	Santi Chandra Muzumdar		Ditto ...	1 0 0	1 0 0	1 0 0	4 30 0	3 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
33	Abdul Mazid	...	Barshtkura ...	1 0 0	1 0 0	1 0 0	5 20 0	4 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
34	Elahi Nowaj Khan	...	Katlee ...	1 0 0	1 0 0	1 0 0	6 25 0	5 0 0	1 25 0	4 14 0	3 0 0	1 14 0	5 10 0
35	Nanda Kishore Nath	...	Deuli ...	1 0 0	1 0 0	1 0 0	5 15 0	4 0 0	1 15 0	4 2 0	3 0 0	1 2 0	3 6 0
36	Kashab Chandra Chakravarty.		Salpa Andhaola	1 0 0	1 0 0	1 0 0	5 20 0	4 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
37	Umesh Chandra Chakravarty.		Machihala ...	1 0 0	1 0 0	1 0 0	5 20 0	4 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
38	Kamini Kumar Das	...	Birpagulia ...	1 0 0	1 0 0	1 0 0	5 30 0	4 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0
39	Farman Gazi	...	Madhna ...	1 0 0	1 0 0	1 0 0	7 35 0	6 0 0	1 35 0	5 10 0	3 0 0	2 10 0	7 14 0
40	Ekumali Shaikh	...	Do. ...	1 0 0	1 0 0	1 0 0	5 25 0	4 0 0	1 25 0	4 14 0	3 0 0	1 14 0	5 10 0
41	Meher Mondal	...	Do. ...	1 0 0	1 0 0	1 0 0	5 10 0	4 0 0	1 10 0	3 12 0	3 0 0	0 12 0	2 4 0
42	Sona Bhuiya	...	Do. ...	2 0 0	2 0 0	2 0 0	15 20 0	10 25 0	2 35 0	8 10 0	6 0 0	2 10 0	3 15 0
43	Momin Shaikh	...	Do. ...	0 10 0	0 10 0	0 20 0	3 0 0	2 10 0	0 30 0	2 4 0	1 8 0	0 12 0	4 8 0
44	Sonamulla Sircar	...	Uchagram ...	1 0 0	1 0 0	1 0 0	8 25 0	7 0 0	1 25 0	4 14 0	3 0 0	1 14 0	5 10 0
45	Golam Sircar	...	Do. ...	1 0 0	1 0 0	1 0 0	7 20 0	6 0 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0
46	Naripulla Sircar	...	Do. ...	2 0 0	2 0 0	2 0 0	18 20 0	16 0 0	2 20 0	7 8 0	6 0 0	1 8 0	2 4 0
47	Umesh Chandra Day	...	Jamalpur ...	2 0 0	2 0 0	2 0 0	13 0 0	10 0 0	3 0 0	9 0 0	6 0 0	3 0 0	4 8 0
48	Krishna Chandra Dutta	...	Ranarampur	1 10 0	1 10 0	1 20 0	8 5 0	6 0 0	2 5 0	6 6 0	4 8 0	1 14 0	3 12 0
49	Naim Sircar	...	Madhna ...	1 0 0	1 0 0	1 0 0	6 25 0	5 0 0	1 25 0	4 14 0	3 0 0	1 14 0	5 10 0

‡ Fed by cattle.

APPENDIX V.

RESIDUAL EFFECT OF BONEMEAL (AMAN PADDY) APPLIED IN 1913.

Dacca.

No.	Name of Cultivator.	Village.	AREA OF LAND.		Quantity of manure.	1913							RESIDUAL EFFECT, 1914.				
						OUTTURN.		Difference of outturn.	Price of outturn.	Cost of manure.	PROFIT.		OUTTURN.		Difference of outturn.	PROFIT.	
			Manured.	Unmanured.		Manured.	Unmanured.				Per plot.	Per acre.	Manured.	Unmanured.		Per plot.	Per acre
			B. K. C.	B. K. C.	Ms. S. C.	Ms. S. C.	Ms. S. C.	Ms. S. C.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Ms. S. C.	Ms. S. C.	Ms. S. C.	Rs. A. P.	Rs. A. P.
1	Shaikh Adam	Katasur ...	0 10 0	0 10 0	0 20 0	4 2 8	2 14 0	1 17 8	5 1 0	1 8 0	3 9 0	21 6 0	3 0 0	2 35 0	0 5 0	0 6 3	2 5 6
2	,, Osman Khan	Jaffrabad ...	1 0 0	1 0 0	1 0 0	7 35 0	5 1 4	2 33 12	8 7 9	3 0 0	5 7 9	16 7 3	5 10 0	4 31 0	0 19 0	1 7 9	4 7 3
3	,, Panchu Munshi	Kaprul ...	0 10 0	0 10 0	0 20 0	5 35 0	3 2 0	2 33 0	8 7 7	1 8 0	6 15 7	41 13 6	2 10 0	2 1 8	0 8 8	0 10 7	3 15 6
4	Kalicharan Mondal	Basbari ...	0 6 0	0 6 0	0 12 0	2 20 8	1 10 0	1 10 8	3 12 7	0 12 0	3 0 7	30 5 10	1 30 0	1 25 4	0 4 12	0 5 11	3 7 2
5	Ram Sankar Sarkar	Duttapara ...	1 0 0	1 0 0	1 0 0	7 21 0	4 10 8	3 10 8	9 12 7	3 0 0	6 12 7	20 5 9	5 0 0	3 20 0	1 20 0	4 11 0	14 1 0
6	Yanus Muhammad	Gazipur ...	1 0 0	1 0 0	1 0 0	6 5 8	3 35 0	2 13 8	7 0 3	3 0 0	4 0 3	12 0 9	4 0 0	3 10 0	0 30 0	2 5 6	7 0 6
7	Krishna Mohan Mondal	Duttapara ...	1 0 0	1 0 0	1 0 0	5 30 4	3 25 0	2 5 4	6 6 3	3 0 0	3 6 3	10 2 9	5 0 0	4 20 0	0 20 0	1 9 0	3 11 0
8	Shaikh Kerai	Nayagaon ...	1 0 0	1 0 0	1 0 0	8 15 8	5 5 4	3 10 4	9 12 2	3 0 0	6 12 2	20 4 6	6 0 0	5 0 0	1 0 0	3 2 0	9 6 0
9	Manik Khan	Baran ...	0 10 0	0 10 0	0 20 0	3 32 4	2 7 0	1 25 4	4 14 2	1 8 0	4 6 2	26 5 0	3 0 0	1 20 0	1 20 0	4 11 0	28 2 0
10	Keramatali	Munda ...	0 5 0	0 5 0	0 10 0	0 32 8	0 15 0	0 17 8	1 4 0	0 12 0	0 8 0	6 0 0	1 30 0	1 10 0	0 20 0	1 9 0	18 12 0
11	Hariday Mondal	Katara ...	0 10 0	0 10 0	0 21 0	4 12 0	3 2 4	1 9 12	3 11 9	1 8 0	2 3 9	13 6 6	3 30 3	3 10 0	0 20 0	1 9 0	9 6 0
12	Panchkowri Manda	Do. ...	0 0 0	0 7 0	0 7 0	4 17 8	2 1 8	2 16 0	7 3 2	1 8 0	5 11 2	34 3 0	3 10 0	2 0 0	1 10 0	3 14 8	21 7 0
13	Sagir Mahmud	Markeon ...	0 10 0	0 10 0	0 20 0	3 15 0	1 30 4	1 24 12	5 1 0	1 8 0	3 9 0	21 10 6	2 20 0	2 0 0	0 20 0	1 9 0	9 6 0
14	Ibrahim	Khilgaon ...	1 0 0	1 0 0	1 0 0	6 13 0	4 13 0	2 6 0	8 7 2	3 0 0	3 7 2	10 5 6	1 5 0	3 0 0	1 5 0	3 8 3	10 8 9
15	Yakub Khan, I	Do. ...	1 0 0	1 0 0	1 0 0	7 12 0	5 11 0	2 1 0	6 1 3	3 0 0	3 1 3	9 3 9	...	...	...	...	...
16	,, II	Do. ...	1 10 0	1 10 0	1 20 0	7 21 0	5 3 0	2 18 0	7 5 7	4 8 0	2 13 7	5 11 2	5 10 0	1 0 0	1 10 0	3 4 6	7 13 0

EFFECT OF BONEMEAL APPLIED IN 1912.

1	Hari Charan Mondal	Chatar ...	0 10 0	0 10 0	0 20 0	4 20 0	2 31 0	1 29 0	5 2 10	1 8 0	3 10 10	22 3 0	.....	.....	.....	.....	.....
2	Pyari Mohan Mondal	Ditto ...	0 7 0	0 7 0	0 14 0	2 19 0	1 28 0	0 31 0	2 5 3	1 0 9	1 4 6	10 15 0	.....	.....	.....	.....	.....
3	Rajkumar Sirkar	Ditto ...	0 10 0	0 10 0	0 20 0	4 27 0	2 12 0	2 15 0	7 2 0	1 8 0	5 10 0	33 12 0	.....	.....	.....	.....	.....
4	Pitambar Mondal	Ditto ...	0 10 0	0 10 0	0 20 0	3 16 0	2 11 0	1 5 0	3 6 0	1 8 0	1 14 0	11 4 0	.....	.....	.....	.....	.....
5	Murali Barui	Ditto ...	0 10 0	0 10 0	0 20 0	4 21 0	3 11 0	1 10 0	3 12 0	1 8 0	2 4 0	13 8 0	.....	.....	.....	.....	.....
6	Dengur Mondal	Ditto ...	0 7 0	0 7 0	0 14 0	3 8 0	2 0 0	1 8 0	3 9 0	1 0 9	2 8 3	21 14 0	.....	.....	.....	.....	.....
7	Sasi Kumar Sen	Khilgaon ...	1 0 0	1 0 0	1 0 0	5 30 0	4 10 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0	.....	.....	.....	.....	.....

RESIDUAL EFFECT OF ABOVE.

			1913.								1914.					
1	Hari Charan Mondal	Chatra ...	0 10 0	0 10 0	...	3 21 0	2 12 0	1 9 0	3 10 10	...	3 10 10	22 1 0	3 20 0	2 0 0	1 20 0	4 11 0	26 2 0
2	Pyari Mohan Mondal	Ditto ...	0 7 0	0 7 0	...	2 19 0	1 37 0	0 22 0	1 10 5	...	1 10 5	14 2 6	2 0 0	1 20 0	0 20 0	1 9 0	13 8 0
3	Raj Kumar Sirkar	Ditto ...	0 10 0	0 10 0	...	3 3 0	1 15 0	1 28 0	5 1 7	...	5 1 7	30 9 6	2 10 0	1 20 0	0 30 0	2 5 6	14 1 0
4	Pitambar Mondal	Ditto ...	0 10 0	0 10 0	...	3 11 0	2 5 0	1 6 0	3 7 2	...	3 7 2	20 11 0	...	...	...	...	...
5	Murali Barui	Ditto ...	0 10 0	0 10 0	...	3 2 0	2 2 0	1 0 0	3 0 0	...	3 0 0	18 0 0	3 0 0	2 25 0	0 15 0	1 2 9	7 0 6
6	Dengur Mondal	Ditto ...	0 7 0	0 7 0	...	2 7 0	1 17 0	0 30 0	2 4 0	...	2 4 0	19 5 0	2 10 0	1 30 0	0 20 0	1 9 0	13 8 0
7	Sasi Kumar Sen	Khilgaon ...	2 0 0	2 0 0	...	10 30 0	6 20 0	4 10 0	12 12 0	...	9 12 0	14 10 0	8 0 0	7 0 0	1 0 0	3 2 0	4 11 0

EFFECT OF BONEMEAL APPLIED IN 1911.

Dacca—concld.

No.	NAME OF CULTIVATOR.	Village.	AREA OF LAND. Manured.	AREA OF LAND. Un-manured.	Quantity of manure.	1911. OUTTURN. Manured.	1911. OUTTURN. Un-manured.	1911. Difference of outturn.	1911. Price of outturn.	1911. Cost of manure.	1911. PROFIT. Per plot.	1911. PROFIT. Per acre.	RESIDUAL EFFECT. 1912. OUTTURN (1912). Manured.	1912. OUTTURN (1912). Un-manured.	1912. Difference of outturn.	1912. PROFIT. Per plot.	1912. PROFIT. Per acre.	RESIDUAL EFFECT. 1913. OUTTURN (1913). Manured.	1913. OUTTURN (1913). Un-manured.	1913. Difference of outturn.	1913. PROFIT. Per plot.	1913. PROFIT. Per acre.
			B. K. C.	B. K. C.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.
1	Shaikh Kalim ...	.....	0 9 14	0 9 11	0 19 12	2 5 0	0 7 8	1 37 8	5 14 0	1 7 6	4 6 6	26 8 9	4 27 8	1 25 1	0 2 7	...	...	1 20 0	4 12 0	0 8 0	0 9 9	1 3 0
2	,, Golamali ...	.....	0 12 12	0 13 5½	0 25 8	5 0 0	2 13 1	2 26 15	8 0 3	1 14 6	6 1 9	29 0 3	4 5 8	3 14 3	0 34 5	2 9 5	12 1 3	4 2 6	3 15 0	0 27 6	2 0 0	5 7 6
3	Gabu	.....	0 3 9	0 4 11	0 7 2	1 14 8	0 34 15	0 19 11	1 7 3	0 8 6	0 14 9	17 8 6	1 20 2	1 20 0	0 0 2	...	...	1 15 0	1 10 0	0 5 0	0 6 0	6 12 0
4	Samiruddin ...	.....	0 5 4	0 5 8	0 10 8	2 25 0	1 26 11	0 38 7	2 1 5	0 12 6	1 4 11	15 9 4	3 6 0	2 25 0	0 21 0	1 9 0	18 3 8	2 20 0	2 2 0	0 18 0	1 5 9	15 8 6
5	Haribasi Modal ...	.....	0 9 3	0 8 14	0 18 6	4 31 0	1 23 0	3 8 0	9 3 6	1 6 0	8 3 6	54 12 6	4 20 12	1 29 0	0 9 12	...	...	3 0 0	3 25 0	1 15 0	1 2 0	27 6 6
6	Gafur	... ..	0 3 6	0 5 2	0 8 12	1 34 0	1 4 12	0 29 4	2 1 10	0 8 0	1 9 10	23 1 0	1 34 9	1 8 11	0 25 9	1 14 3	37 5 0	2 2 0	1 30 0	0 12 0	0 11 6	14 8 0
7	Golamali	.....	0 8 4	0 11 2	0 16 8	5 0 0	3 17 3	1 22 13	4 11 5	1 3 3	3 7 8	29 3 8	3 5 1	1 8 8	0 36 9	2 11 3	17 12 6	5 0 0	4 2 0	0 33 0	2 13 6	19 13 6
8	Ismai Khan ...	.....	0 8 14	0 8 11	0 17 12	3 0 0	2 11 15	0 28 1	2 1 7	1 5 3	0 12 4	5 5 4	3 12 0	2 3 13	0 8 3	1 10 0	1 8 6	3 4 0	2 37 0	0 7 0	0 7 9	3 6 3
9	Shaikh Kalim ...	.....	0 8 4	0 11 2	0 16 8	5 0 0	3 17 3	1 22 13	4 11 5	1 3 3	3 7 8	29 3 8	4 30 0	3 23 1	1 8 1	3 7 6	24 7 6	4 20 0	3 22 0	0 38 0	2 13 6	19 14 6
10	,, Rahim Bux	.....	0 8 10	0 9 0	0 17 4	3 10 0	...	...	...	1 4 9	...	...	3 0 0	3 39 4	1 0 12	3 11 6	24 8 6	4 35 0	3 37 0	1 8 0	3 9 9	23 7 3
11	Chandra Badan Sing.	.....	0 9 2	0 8 8	0 18 4	3 29 0	2 32 11	0 27 5	1 0 3	1 5 9	0 11 0	1 9 8	3 0 0	3 39 4	1 0 12	3 11 6	16 12 6	7 2 6	5 35 0	1 7 0	3 7 9	15 11 0
12	Jayhari Mondal ...	.. ...	0 13 12	0 8 12	0 27 8	5 10 0	3 34 11	1 15 5	2 2 5	2 1 0	2 1 5	3 5 1	7 29 5	6 0 10	1 9 6							
13	Felu Christian ...	.....	0 6 13	0 6 15	0 13 10	3 32 0	2 38 13	0 33 3	2 7 3	1 0 6	1 6 9	14 1 0	3 30 0	3 7 10	0 22 6	1 10 6	15 11 9	3 3 0	2 35 0	0 8 0	0 9 9	5 7 9
14	Shaikh Jatru ...	.....	0 4 0	0 4 0	0 8 0	2 13 0	1 29 3	0 23 13	1 12 6	0 8 6	1 3 0	17 13 0	2 24 5	2 0 0	0 24 0	1 12 6	26 11 0	2 8 0	1 33 0	0 15 0	1 2 0	16 14 0
15	Lakshmi Sirdar ...	.....	0 5 4	0 5 4	0 10 8	1 23 0	0 25 14	0 37 2	2 12 6	0 12 6	1 5 10	15 14 3	2 28 0	1 37 10	0 28 6	2 2 3	24 14 9	2 7 0	1 33 0	0 14 0	1 0 9	12 0 3
			0 5 4	0 5 4	0 10 8	1 37 6	0 28 10	0 28 10	2 2 4	0 12 6	2 0 0	23 5 4	2 19 0	...	...	...	...	2 2 0	1 25 0	0 17 0	1 4 8	14 10 3

EFFECT OF BONEMEAL APPLIED IN 1912.

Mymensingh.

No.	NAME OF CULTIVATOR.	Village.	AREA. Manured plot.	AREA. Un-manured plot.	MANURE. Quantity.	MANURE. Cost.	1912. OUTTURN. Manured plot.	1912. OUTTURN. Un-manured plot.	1912. Difference of outturn.	1912. Price of outturn.	1912. PROFIT. Per plot.	1912. PROFIT. Per acre.	RESIDUAL EFFECT. 1913. OUTTURN. Manured plot.	1913. OUTTURN. Un-manured plot.	1913. Difference of outturn.	1913. PROFIT. Per plot.	1913. PROFIT. Per acre.	RESIDUAL EFFECT. 1914. OUTTURN. Manured plot.	1914. OUTTURN. Un-manured plot.	1914. Difference of outturn.	1914. PROFIT. Per plot.	1914. PROFIT. Per acre.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
			B. K. C.	B. K. C.	Mds. S. C.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.
1	Kashimuddin ...	Digarkandi ...	0 10 0	0 10 0	0 20 0	1 8 0	2 37 8	1 24 0	1 13 8	4 0 2	2 8 2	15 1 0	3 30 0	2 13 0	1 20 0	4 8 0	27 0 0	3 10 0	2 35 0	0 15 0	1 2 0	6 12 0
2	Latif Bepari ...	Bolashpur ...	0 8 0	0 8 0	0 16 0	1 3 0	2 5 0	1 7 8	0 37 8	2 13 0	1 9 9	12 1 0	2 5 0	1 30 0	0 15 0	1 2 0	8 7 0	2 0 0	1 30 0	0 10 0	0 12 0	5 10 0
3	Alam Khan ...	Mashlakhali...	0 10 0	0 10 0	0 20 0	1 8 0	2 2 0	1 3 0	0 39 0	2 14 9	1 6 9	8 8 6	3 30 0	2 25 0	1 5 0	3 8 0	29 14 0	3 29 0	2 35 0	0 25 0	1 14 0	11 4 0
4	Tazimuddin ...	Lamapara ...	0 12 0	0 12 0	0 24 0	1 13 0	2 35 0	1 14 0	1 5 0	3 6 0	1 9 0	7 15 0	4 10 0	3 15 0	0 35 0	2 8 0	12 8 0	4 0 0	3 20 0	0 20 0	1 8 0	7 8 0
5	Anu Sircar ...	Digarkandi ...	0 10 0	0 10 0	0 20 0	1 8 0	3 39 0	1 35 0	1 35 0	5 10 0	4 2 0	24 12 0	3 5 0	2 35 0	0 10 0	0 12 0	4 8 0	2 35 0	2 30 0	0 5 0	0 6 0	2 4 0
6	Samir Mondal ...	Lamapara ...	0 8 0	0 8 0	0 16 0	1 3 0	1 17 0	0 30 0	0 27 0	2 0 4	0 13 0	6 4 0	3 10 0	2 0 0	1 10 0	3 12 0	28 2 0	2 20 0	2 10 0	0 20 0	1 2 0	9 10 0
7	Bazulal Das ...	Mashkandi ...	0 7 0	0 7 0	0 14 0	1 0 9	2 20 0	1 25 0	0 35 0	2 10 0	1 9 3	13 8 6	3 10 0	2 0 0	1 10 0	3 12 0	28 9 0	2 20 0	2 5 0	0 15 0	1 2 0	9 10 0
8	Meher Khan ...	Banshi ...	0 10 0	0 10 0	0 20 0	1 8 0	1 9 0	1 0 0	0 9 0	0 10 0	...	...	2 35 0	1 30 0	1 5 0	3 6 0	28 9 0	2 20 0	2 5 0	0 15 0	1 2 0	9 10 0
9	Naimuddin Sircar	Singhjani ...	0 10 0	0 10 0	0 20 0	1 8 0	3 0 0	2 0 0	1 0 0	3 0 0	1 8 0	9 0 0	3 5 0	2 10 0	0 35 0	2 8 0	15 0 0	3 30 0	3 5 0	0 25 0	1 14 0	11 4 0
10	Girish Chandra Chowdhury.	Do. ...	0 10 0	0 10 0	0 20 0	1 8 0	2 30 0	2 6 8	0 23 8	1 12 3	0 4 3	1 9 6	3 5 0	2 15 0	0 30 0	2 4 0	13 8 0	3 30 0	3 5 0	0 25 0	1 14 0	11 4 0
11	Jaimat Shaikh ...	Fulbaria ...	0 10 0	0 10 0	0 20 0	1 8 0	1 25 0	1 18 8	0 6 8	0 7 9	...	...	3 20 0	2 35 0	0 25 0	1 14 0	11 4 0	4 5 0	3 0 0	1 5 0	3 6 0	20 4 0
12	Mohesh Chandra Dey	Kuchgar ...	0 10 0	0 10 0	0 20 0	1 8 0	2 0 0	1 26 8	0 13 8	1 0 5	...	...	3 35 0	3 0 0	0 35 0	2 8 0	15 0 0	3 30 0	3 10 0	0 20 0	1 8 0	9 0 0

APPENDIX VI.

MYMENSINGH.

Residual effect of Bonemeal applied in 1913.

No.	Name of cultivator.	Village.	Area of land.		Quantity of manure.	Outturn (1913).		Difference of outturn.	Price of outturn.	Cost of manure.	Profit.		Outturn (1914).		Difference of outturn.	Profit.	
			Manured.	Unmanured.		Manured.	Unmanured.				Per plot.	Per acre.	Manured.	Unmanured.		Per plot.	Per acre.
			B. K. C.	B. K. C.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.
1	Setu Mandal	Golgonda	1 0 0	1 0 0	1 0 0	9 0 0	8 0 0	1 0 0	3 0 0	3 0 0	...	...	2 25 0	8 5 0	1·20 0	4 8 0	13 8 0
2	Imamali Sircar	Akna	0 12 0	0 12 0	0 24 0	4 15 0	4 0 0	0 15 0	1 2 0	1 12 3	...	...	5 0 0	4 0 0	1 0 0	3 0 0	15 0 0
3	Shiakh Ismail Munshi	Do.	0 15 0	0 15 0	0 30 0	5 15 0	43 5 0	0 28 0	1 8 0	2 4 0	...	..	6 20 0	5 0 0	1 20 0	4 8 0	18 0 0
4	Dengu Shaikh	Do.	1 0 0	1 0 0	1 0 0	8 0 0	5 30 12	2 9 14	6 11 0	3 0 0	3 11 0	11 1 0	9 0 0	7 10 0	1 30 0	5 4 0	15 12 0
5	Setu Mandal	Golgonda	0 16 0	0 16 0	0 32 0	5 0 0	4 0 0	1 0 0	3 0 0	2 6 6	0 9 6	2 2 6	6 20 6	5 10 0	1 10 0	3 12 0	14 1 0
6	Shaikh Jamir	Akna	0 12 0	0 12 0	0 24 0	4 0 0	4 0 0	...	...	3 0 0	...	...	5 0 0	4 0 0	1 0 0	3 0 0	15 0 0
7	Kapitulla Tarapdar	Jorbari	0 10 0	0 10 0	0 20 0	4 3 0	3 10 0	0 33 0	2 7 6	1 8 0	0 15 6	5 13 0	5 0 0	4 0 0	1 0 0	3 0 0	18 0 0
8	Alep Khan	Do.	0 16 0	0 16 0	0 32 0	6 27 0	4 18 0	2 9 0	6 10 6	2 6 6	3 4 0	12 3 0	7 0 0	5 10 0	1 30 0	5 4 0	19 11 0
9	Azim Khan	Do.	0 19 0	0 19 0	0 38 0	6 9 0	4 22 0	1 27 0	5 0 6	2 13 6	2 3 0	6 14 3	6 20 0	5 0 0	1 20 0	4 8 0	14 3 4
10	Ashan Mandal	Do.	0 7 0	0 7 0	0 14 0	3 30 0	2 1 0	1 29 0	5 2 9	1 0 9	4 2 0	35 5 6	4 0 0	3 0 0	1 0 0	3 0 0	25 11 6
11	Shamsher Khan	Do.	0 17 0	0 17 0	0 34 0	6 3 0	4 11 0	2 32 0	8 6 3	2 8 9	5 13 6	20 10 0	6 30 0	5 0 0	1 30 0	5 4 0	18 8 6
12	Jarip Khan	Do.	0 10 0	0 10 0	0 20 0	4 1 0	3 3 0	0 38 0	2 13 7	1 8 0	1 5 7	8 1 6	4 35 0	3 0 0	1 35 0	5 10 0	33 12 0
13	Ismail Khan	Do.	0 13 0	0 13 0	0 26 0	5 5 0	3 23 0	1 22 0	4 8 3	1 15 0	2 9 3	12 7 0	5 35 0	4 35 0	1 0 0	3 0 0	13 13 6
14	Abbas Sircar	Do.	1 3 0	1 3 0	1 6 0	9 1 0	7 9 0	1 32 0	5 6 5	3 7 3	1 15 2	5 1 6	9 35 0	8 0 0	1 35 0	5 10 0	14 10 9
15	Kanu Mandal	Do.	0 16 0	0 16 0	0 32 0	8 6 0	6 9 0	1 37 0	5 12 3	2 6 6	3 5 9	12 9 6	8 25 0	7 0 0	1 25 0	4 14 0	18 4 6
16	Alimaddin Mandal	Do.	0 13 0	0 13 0	0 26 0	3 27 0	1 2 0	2 25 0	7 14 0	1 15 9	5 14 3	27 3 9	4 20 0	3 0 0	1 20 6	4 8 0	2 1 3
17	Ahamed Khan	Do.	1 0 0	1 0 0	1 0 0	9 17 0	5 38 0	3 19 0	10 6 6	3 0 0	7 6 6	22 3 6	9 0 0	7 0 0	2 0 0	6 0 0	18 0 0
18	Alijan Shaikh	Muktagacha	1 0 0	1 0 0	1 0 0	5 10 0	3 20 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0	5 0 0	3 0 0	2 0 0	6 0 0	21 0 0
19	Macha Shaikh	Ditto	1 0 0	1 0 0	1 0 0	4 20 0	3 20 0	1 0 0	3 0 0	3 0 0	...	...	8 25 0	6 20 0	2 5 0	6 6 0	19 2 0
20	Jagat Chandra Gope	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	5 5 0	1 35 0	5 10 0	3 0 0	2 10 0	7 14 0	7 30 0	6 0 0	1 30 0	5 4 0	15 12 0
21	Jagat Chandra Gope	Ditto	1 0 0	1 0 0	1 0 0	8 0 0	6 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	8 35 0	7 0 0	1 35 0	5 10 0	15 14 0
22	Jadu Shaikh	Ditto	1 0 0	1 0 0	1 0 0	8 0 0	5 30 0	2 10 0	6 12 0	3 0 0	3 12 0	11 4 0	8 20 0	6 25 0	1 35 0	5 10 0	16 14 0
23	Abdul Sircar	Ditto	0 18 0	0 18 0	0 36 0	3 14 0	3 4 0	0 10 0	0 14 0	2 11 3	...	...	4 30 0	3 0 0	1 20 0	4 8 0	15 0 0
24	Harmatali	Dhala	0 10 0	0 10 0	0 20 0	5 10 0	4 0 0	1 10 0	3 12 0	1 8 0	2 4 0	13 8 0	5 35 0	5 0 0	0 35 0	2 10 0	15 12 0
25	Akmashali Fakir	Do.	0 5 0	0 5 0	0 10 0	3 0 0	2 8 0	0 32 0	2 6 0	0 12 0	1 10 0	19 8 0	3 20 0	2 30 0	0 30 0	2 4 0	27 0 0
26	Jhora Shaikh	Do.	0 15 0	0 15 0	0 30 0	7 0 0	5 25 0	1 15 0	4 2 0	2 4 0	1 14 0	7 8 0	7 25 0	6 0 0	1 25 0	4 14 0	19 8 0
27	Kamala Kanta Dey	Do.	0 7 8	0 7 8	0 15 0	5 0 0	3 20 0	1 20 0	4 8 0	1 2 0	3 6 0	27 0 0	5 20 0	4 30 0	0 30 0	2 4 0	19 4 7
28	Abdul Shaikh	Do.	0 7 8	0 7 8	0 15 0	4 30 0	3 0 0	1 30 0	5 4 0	1 2 0	4 2 0	33 0 0	5 0 0	4 0 0	1 0 0	3 0 0	25 11 7
29	Fulchand Paramanik	Baliadi	0 6 0	0 6 0	0 12 0	2 20 0	1 30 0	0 30 0	2 4 0	0 14 6	1 5 6	13 7 0	3 0 0	2 0 0	1 0 0	3 0 0	30 0 0
30	Sitaram Mandal	Do.	0 6 0	0 6 0	0 12 0	3 0 0	2 0 0	1 0 0	3 0 0	0 14 6	2 1 6	20 15 0	3 20 0	2 20 0	1 0 0	3 0 0	30 0 0
31	Tarifulla Shaikh	Do.	0 8 0	0 8 0	0 16 0	5 0 0	3 0 0	2 0 0	6 0 0	1 3 3	4 12 9	35 15 6	5 25 0	4 25 0	1 0 0	5 0 0	11 4 0
32	Matiram Jamadar	Do.	0 18 0	0 18 0	0 36 0	9 0 0	7 8 0	1 32 0	5 6 0	2 11 3	2 10 9	9 5 6	9 30 0	8 0 0	1 30 0	5 4 0	17 8 0
33	Kitabdi	Do.	0 4 0	0 4 0	0 8 0	3 0 0	1 35 0	1 5 0	3 6 0	0 9 6	2 12 6	41 11 6	3 25 0	2 35 0	0 30 0	2 4 0	33 12 0
34	Ali Mandal	Guziam	0 8 8	0 8 8	0 17 0	2 30 0	2 0 0	0 30 0	2 4 0	1 4 6	0 15 6	6 12 9	3 0 0	2 0 0	1 0 0	3 0 0	22 8 0
35	Panchu Shaikh	Ditto	0 9 8	0 9 8	0 19 0	2 0 0	1 0 0	1 0 0	3 0 0	1 6 8	1 9 6	10 8 3	2 18 0	1 13 0	1 5 0	3 6 0	22 8 0
36	Dali Moral	Ditto	1 3 0	1 3 0	1 8 0	6 30 0	6 30 0	...	...	3 7 3	...	...	7 0 0	5 0 0	2 0 0	6 0 0	15 10 6
37	Mohesh Ch. Chowdhury	Ramgopalpur	1 0 0	1 0 0	1 0 0	5 20 0	5 0 0	0 20 0	1 8 0	3 0 0	...	...	6 0 0	4 10 0	1 30 0	5 4 0	15 12 0
38	Satish Ch. Dutta	Ditto	1 4 0	1 4 0	1 8 0	3 10 0	3 0 0	0 10 0	0 12 0	3 10 0	...	...	3 25 0	2 0 0	1 25 0	4 14 0	16 4 0
39	Bepin Ch. Das	Ditto	0 18 0	0 18 0	0 36 0	3 15 0	3 0 0	0 15 0	1 2 0	2 7 6	...	...	3 30 0	2 0 0	1 30 0	5 4 0	32 2 0
40	Shaikh Somedali	Ditto	0 12 0	0 12 0	0 24 0	3 15 0	3 0 0	0 15 0	1 2 0	1 12 0	...	...	3 35 0	2 15 0	1 20 0	4 8 0	22 8 0
41	Chabi Shaikh	Ballar	0 14 0	0 14 0	0 28 0	6 5 0	4 33 0	1 12 0	3 14 0	2 1 6	1 13 0	7 12 6	7 20 0	6 0 0	1 20 0	4 8 0	9 10 3
42	Hanif Bepari	Do.	0 10 0	0 10 0	0 20 0	5 0 0	4 0 0	1 0 0	3 0 0	1 8 0	1 8 0	9 0 0	5 20 0	4 10 0	1 20 0	3 12 0	22 8 0
43	Izat Shaikh	Do.	1 0 0	1 0 0	1 0 0	7 5 0	5 0 0	2 5 0	6 6 0	3 0 0	3 6 0	10 2 0	7 15 0	5 15 0	2 0 0	6 0 0	18 0 0
44	Ditto	Do.	1 0 0	1 0 0	1 0 0	8 0 0	6 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	8 5 0	6 10 0	1 35 0	3 10 0	10 14 0
45	Kaimulla Sircar	Do.	0 15 0	0 15 0	0 30 0	6 30 0	5 0 0	1 30 0	5 4 0	2 4 0	3 0 0	12 0 0	7 0 0	5 20 0	1 20 0	4 8 0	18 0 0
46	Mianjan Shaikh	Jamalpur	2 5 0	2 5 0	2 10 0	24 0 0	20 0 0	4 0 0	12 0 0	6 12 0	5 4 0	6 15 9	14 0 0	11 20 0	3 20 0	10 8 0	14 0 0
47	Rajabali	Ditto	2 0 0	2 0 0	2 0 0	26 0 0	20 0 0	6 0 0	18 0 0	6 0 0	12 0 0	18 0 0	17 10 0	15 5 0	3 5 0	6 6 0	9 9 0
48	Mahamedali Shaikh	Ditto	2 0 0	2 0 0	2 0 0	16 0 0	9 0 0	7 0 0	21 0 0	6 0 0	15 0 0	22 8 0	16 35 0	14 0 0	2 35 0	8 10 0	12 15 0
49	Sonamunshi Shaikh	Ditto	0 9 0	0 9 0	0 18 0	5 0 0	3 0 0	2 0 0	6 0 0	1 5 7	4 10 5	31 0 0	5 20 0	4 20 0	1 0 0	3 0 0	20 0 0
50	Shagar Shaikh	Ditto	0 10 0	0 10 0	0 20 0	8 0 0	4 0 0	2 0 0	6 0 0	1 8 0	4 8 0	27 0 0	6 15 0	4 30 0	1 25 0	4 14 0	29 4 0
51	Mabu Shaikh	Ditto	0 10 0	0 10 0	0 20 0	6 20 0	5 0 0	1 20 0	4 8 0	1 8 0	3 0 0	18 0 0	6 35 0	5 5 0	1 30 0	5 4 0	31 12 0
52	Abdul Rahan Sircar	Gaffargaon	0 10 0	0 10 0	0 20 0	5 37 0	3 32 0	2 5 0	6 6 0	1 8 0	4 14 0	29 4 0	5 10 0	4 10 0	1 0 0	3 0 0	18 0 0

APPENDIX VI—*contd.*

MYMENSINGH—*concld.*

Residual effect of bonemeal applied in 1913.

No.	NAMES OF CULTIVATOR.	Village.	AREA OF LAND. Manured.	AREA OF LAND. Un-manured.	Quantity of manure.	OUTTURN (1913). Manured.	OUTTURN (1913). Un-manured.	Difference of outturn.	Price of outturn.	Cost of manure.	PROFIT. Per plot.	PROFIT. Per acre.	OUTTURN (1914). Manured.	OUTTURN (1914). Un-manured.	Difference of outturn.	PROFIT. Per plot.	PROFIT. Per acre.
			B. K. C.	B. K. C.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Mds. S. C.	RS. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Mds. S. C.	Mds. S. C.	Mds. S. C.	Rs. A. P.	Rs. A. P.
53	Kudratulla Fakir	Gaffargaon	0 10 0	0 10 0	0 20 0	5 15 0	3 36 0	1 19 0	4 6 6	1 8 0	2 14 6	17 7 0	5 30 0	4 35 0	0 35 0	2 10 0	15 12 0
54	Shaikh Azim	Ditto	1 3 0	1 3 0	1 6 0	8 24 0	7 3 0	1 21 0	4 9 0	3 8 0	1 3 0	3 1 6	9 0 0	7 10 0	1 30 0	5 4 0	13 11 0
55	Kalim Mir Shikari	Ditto	0 12 0	0 12 0	0 24 0	5 28 0	4 32 0	0 36 0	2 11 0	1 12 0	0 15 0	4 11 0	6 0 0	5 0 0	1 0 0	3 0 0	15 0 0
56	Jeynatali Shaikh	Ditto	2 5 0	2 5 0	2 10 0	25 3 0	17 0 0	8 3 0	24 3 6	7 12 0	17 7 6	23 4 9	15 23 0	13 8 0	2 15 9	7 2 0	10 11 0
57	Sovan Golondas	Ditto	1 4 0	1 4 0	1 8 0	16 18 0	12 18 0	4 0 0	12 0 9	3 10 0	8 6 0	20 15 0	16 30 0	15 0 0	1 30 0	5 4 0	15 12 0
58	Abdul Sircar	Ditto	1 0 0	1 0 0	1 0 0	10 30 0	8 26 0	2 4 0	6 4 9	3 0 0	3 4 9	9 14 3	11 0 0	9 25 0	1 15 0	4 2 0	12 6 0
59	Shaikh Abdul	Ditto	2 2 0	2 2 0	2 4 0	20 10 0	14 30 0	5 20 0	16 8 0	6 6 0	10 2 0	14 7 6	16 30 0	13 0 0	3 30 0	11 4 0	16 14 0
60	Darika Nath Sircar	Bahadurpur	1 0 0	1 0 0	1 0 0	11 0 0	5 28 0	5 12 0	15 13 0	3 0 0	12 13 0	38 7 0	11 15 0	9 30 0	1 25 0	4 14 0	14 10 0
61	Mahamed Ismail Sircar	Ditto	1 1 0	1 1 0	1 2 0	9 0 0	6 12 0	2 28 0	8 7 0	3 0 0	5 4 0	15 12 0	9 25 0	8 0 0	1 25 0	4 14 0	14 10 0
62	Ishan Ch. Shir	Ditto	1 0 0	1 0 0	1 0 0	9 0 0	6 10 0	2 30 0	8 4 0	3 0 0	5 4 0	15 12 0	10 20 0	8 10 0	2 10 0	6 12 0	20 4 0
63	Samir Jaigirder	Ditto	1 0 0	1 0 0	1 0 0	11 0 0	5 20 0	5 20 0	16 8 0	3 0 0	13 8 0	40 8 0	10 20 0	8 10 0	2 10 0	6 12 0	20 4 0
64	Alapali Shaikh	Ditto	1 0 0	1 0 0	1 0 0	8 0 0	5 0 0	3 0 0	9 0 0	3 0 0	6 0 0	18 0 0	8 20 0	7 0 0	1 20 0	4 14 0	14 10 0
65	Maka Shaikh	Ditto	1 0 0	1 0 0	1 0 0	10 0 0	5 30 0	4 10 0	12 12 0	3 0 0	9 12 0	29 4 0	10 25 0	8 35 0	1 30 0	5 4 0	15 12 0
66	Jamir Shaikh	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	5 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	7 20 0	6 0 0	1 20 0	4 8 0	13 8 0
67	Jamir Shaikh	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	4 0 0	3 0 0	9 0 0	3 0 0	6 0 0	18 0 0	7 25 0	6 0 0	1 25 0	4 14 0	14 10 0
68	Naru Shaikh	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	5 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	7 30 0	6 0 0	1 30 0	5 4 0	15 12 0
69	Suli Shaikh	Ditto	1 0 0	1 0 0	1 0 0	11 0 0	7 30 0	3 10 0	9 12 0	3 0 0	6 12 0	20 4 0	11 15 0	9 35 0	1 20 0	4 8 0	13 8 0
70	Chaugin Garow	Ditto	1 0 0	1 0 0	1 0 0	7 30 0	6 0 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0	8 0 0	5 15 0	2 25 0	7 14 0	23 10 0
71	Sutar Shaikh	Ditto	0 10 0	0 10 0	0 20 0	5 0 0	2 0 0	3 0 0	9 0 0	1 8 0	7 8 0	45 0 0	5 10 0	4 0 0	1 10 0	3 12 0	22 8 0
72	Nitai Hadi	Ditto	1 0 0	1 0 0	1 0 0	7 30 0	3 0 0	4 30 0	14 4 0	3 0 0	11 4 0	33 12 0	8 0 0	5 5 0	2 35 0	8 10 0	25 14 0
73	Kashi Nath Sircar	Ditto	1 0 0	1 0 0	1 0 0	7 30 0	5 0 0	2 30 0	8 4 0	3 0 0	5 4 0	15 12 0	8 0 0	6 0 0	2 0 0	6 0 0	18 0 0
74	Shaher Jamadar	Baigunbari	1 0 0	1 0 0	1 0 0	8 0 0	4 6 0	3 24 0	10 12 0	3 0 0	7 12 0	23 4 0	8 15 0	3 35 0	1 20 0	4 8 0	13 8 0
75	Nasiruddin Shaikh	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	5 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	7 10 0	5 5 0	2 5 0	6 6 0	19 2 0
76	Hem Chandra Dutta	Ditto	1 0 0	1 0 0	1 0 0	6 20 0	4 0 0	2 20 0	7 8 0	3 0 0	4 8 0	13 8 0	6 30 0	5 0 0	1 30 0	5 4 0	15 12 0
77	Shajan Mandal	Ditto	1 0 0	1 0 0	1 0 0	8 30 0	5 26 0	2 34 0	8 8 0	3 0 0	5 8 0	16 8 0	9 0 0	7 0 0	2 0 0	6 0 0	18 0 0
78	Inatulla Munshi	Ditto	1 0 0	1 0 0	1 0 0	8 20 0	8 0 0	0 20 0	1 8 0	3 0 0	...	...	8 35 0	7 0 0	1 35 0	5 10 0	16 14 0
79	Rahamatulla Munshi	Ditto	1 2 0	1 2 0	1 4 0	7 0 8	5 0 0	2 0 0	6 0 0	3 4 0	2 12 0	7 8 0	7 10 0	5 10 0	2 0 0	6 0 0	16 5 6
80	Shahar Mandal	Ditto	1 0 0	1 0 0	1 0 0	5 0 0	3 13 0	1 17 0	5 0 0	3 0 0	2 0 0	6 0 0	5 15 0	3 10 0	2 5 0	6 6 0	19 2 0
81	Sharup Mandal	Ditto	1 0 0	1 0 0	1 0 0	6 12 0	4 25 8	1 26 8	4 15 6	3 0 0	2 15 6	8 14 6	6 25 0	5 0 0	1 25 0	4 14 0	14 10 0
82	Jainat Fakir	Ditto	1 0 0	1 0 0	1 0 0	4 20 0	2 10 0	3 20 0	8 12 0	3 0 0	3 12 0	11 4 0	4 30 0	3 10 0	1 20 0	4 8 0	13 8 0
83	Khudi Mandal	Sharishabari	1 10 0	1 10 0	1 20 0	14 0 0	10 20 0	3 20 0	10 8 0	4 8 0	6 0 0	12 0 0	14 30 0	12 5 0	2 22 0	7 14 0	15 12 0
84	Azimuddin Sircar	Ditto	1 0 0	1 0 0	1 0 0	10 0 0	7 0 0	3 0 0	9 0 0	3 0 0	8 0 0	18 0 0	10 15 0	8 0 0	2 15 0	7 2 0	21 6 0
85	Sayedali Shaikh	Ditto	1 0 0	1 0 0	1 0 0	8 0 0	6 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	8 15 0	6 5 0	2 10 0	6 12 0	20 4 0
86	Solai Sircar	Ditto	0 10 0	0 10 0	0 20 0	3 0 0	2 0 0	1 0 0	3 0 0	1 8 0	1 8 0	9 0 0	3 20 0	2 0 0	1 20 0	4 8 0	27 0 0
87	Rafatulla Sircar	Ditto	0 10 0	0 10 0	0 20 0	3 0 0	2 0 0	1 0 0	3 0 0	1 8 0	1 8 0	9 0 0	3 15 0	1 30 0	1 25 0	4 14 0	29 4 0
88	Alep Shaikh	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	5 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	7 10 0	5 10 0	2 0 0	6 0 0	18 0 0
89	Sobedali Bhuija	Ditto	1 0 0	1 0 0	1 0 0	8 0 0	6 20 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0	8 20 0	6 35 0	1 25 0	4 14 0	14 10 0
90	Tashir Mudi	Ditto	1 0 0	1 0 0	1 0 0	6 0 0	4 20 0	1 20 0	4 8 0	3 0 0	1 8 0	4 8 0	6 15 0	4 15 0	2 0 0	6 0 0	18 0 0
91	Khudi Fakir	Ditto	1 0 0	1 0 0	1 0 0	7 0 0	5 10 0	1 30 0	5 4 0	3 0 0	2 4 0	6 12 0	7 15 0	5 10 0	2 5 0	6 6 0	19 2 0
92	Shahebulla Sircar	Ditto	1 0 0	1 0 0	1 0 0	8 0 0	6 5 0	1 35 0	5 10 0	3 0 0	2 10 0	7 14 0	8 10 0	6 6 0	2 4 0	6 4 9	18 14 3
93	Ahamed Khan	Ditto	0 5 0	0 5 0	0 10 0	1 20 0	1 0 0	0 20 0	1 8 0	0 12 0	0 12 0	2 0 0	1 35 0	1 1 0	0 34 0	2 8 9	30 9 0
94	Kashi Shaikh	Ditto	1 0 0	1 0 0	1 0 0	9 0 0	6 0 0	3 0 0	9 0 0	3 0 0	6 0 0	18 0 0	9 10 0	7 0 0	2 10 0	6 12 0	20 4 0
95	Samir Mandal	Ditto	0 10 0	0 10 0	0 20 0	4 0 0	2 25 0	1 15 0	4 2 0	1 8 0	2 10 0	10 12 0	4 20 0	3 0 0	1 20 0	4 8 0	27 0 0
96	Pyarmamud Mridha	Trishal	1 0 0	1 0 0	1 0 0	8 25 0	4 33 0	3 31 0	11 6 0	3 0 0	8 6 0	25 2 0	9 0 0	7 0 0	2 0 0	6 0 0	18 0 0
97	Sayedali Sircar	Do.	1 0 0	1 0 0	1 0 0	9 10 0	5 10 0	4 0 0	12 0 0	3 0 0	9 0 0	27 0 0	9 20 0	9 10 0	2 10 0	6 12 0	29 4 0
98	Tazemuddin Mandal	Do.	1 0 0	1 0 0	1 0 0	8 0 0	6 0 0	2 0 0	6 0 0	3 0 0	3 0 0	9 0 0	8 10 0	6 10 0	2 0 0	6 0 0	18 0 0
99	Bhringu Shaikh	Do.	1 0 0	1 0 0	1 0 0	9 0 0	5 31 0	3 9 0	9 11 0	3 0 0	6 11 0	20 1 0	9 15 0	7 35 0	1 20 0	4 8 0	13 8 0
100	Baikanta Chandra Shil	Do.	1 0 0	1 0 0	1 0 0	8 35 0	5 10 0	3 25 0	10 14 0	3 0 0	7 14 0	23 10 0	9 10 0	7 15 0	1 35 0	5 10 0	16 14 0

APPENDIX VI.—*concld.*

DACCA.

Effect of Bonemeal and Lime on red soils.

No.	Names of cultivators.	Village.
1	Shaikh Surath Ali ...	... Koshkhana.
2	Shaikh Samirulla ...	... Companibag.
3	Shaikh Fazu ...	... Ditto.

EFFECT OF BONEMEAL AND LIME IN RED SOIL IN JULY 1915.

Mymensingh.

No.	NAME.	Village.	
1	Elahi Box	Kawraid ...	Crop on manured plot has a better appearance.
2	Jahar Ali Daftri	,, ...	

APPENDIX VII.

POTATO CULTIVATION, 1914.

Dacca.

No.	Names of cultivators.	Village.		Area of land.	Quantity of seed.	Outturn.	Price of outturn.	Cost of cultivation.	PROFIT. Per plot.	PROFIT. Per Acre.
1	2	3		4	5	6	7	8	9	10
				B. K. CH.	M. S. CH.	M. S. CH.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Abdul Kadir Munshi ...	Jamnagar ...		0 18 0	6 0 0	36 15 0	90 15 0	75 8 0	15 7 0	51 7 8
2	Ahmad Munshi	Ditto ...		½ 0 0	10 0 0	84 10 0	210 10 0	140 9 0	70 1 0	105 1 6
3	Amjatali Munshi	Ditto ...		2 0 0	6 0 0	79 25 0	199 2 10	96 7 0	102 11 10	154 1 9
4	Wahed Ali	Ditto ...		0 18 0	4 0 0	43 15 0	108 7 0	60 3 0	48 4 0	160 13 6
5	Munsoor Ali	Ditto ...		0 8 0	1 0 0	18 12 8	45 13 6	18 0 0	27 13 0	208 5 3
6	Subed Ali	Mirchapur ...		0 10 0	2 0 0	16 5 0	40 5 0	28 2 0	12 3 0	73 2 0
7	Juman Prodhan	Ditto ...		0 18 0	3 0 0	38 15 0	95 15 0	46 6 0	49 9 0	165 3 8
8	Madhu Prodhan	Mamdabad		0 18 0	3 0 0	39 10 8	98 3 6	47 9 0	41 10 6	138 13 8
9	Machu Prodhan	Ramnagar ...		1 0 0	4 0 0	52 10 0	130 10 0	58 6 0	72 4 0	216 12 0
10	Alam Bepari	Ditto ...		1 10 0	6 0 0	16 0 0	40 0 0	84 2 0	.....	.....
11	Ibrahim	Ditto ...		1 5 0	5 0 0	45 5 0	112 13 0	72 8 0	50 7 0	120 12 0
12	Madan Prodhan	Gagatia ...		0 5 0	1 0 0	9 20 0	23 12 0	15 6 0	8 6 0	100 8 0
13	Ismail	Huglakandi		0 5 0	1 0 0	8 2 0	20 2 0	15 9 0	4 9 0	54 12 0
14	Nijamaddi	Ditto ...		0 2 8	0 20 0	4 25 0	11 9 0	9 4 0	2 5 0	55 8 0
15	Samser Ali	Koroipur ...		0 6 0	1 0 0	8 20 0	21 4 0	16 2 0	5 2 0	51 4 0
16	Madbar	Mamurdi	Khas Mahal.	0 6 0	1 0 0	3 35 0	9 11 0	13 0 0	.....	.....
17	Ekabbar	Ditto		0 6 0	1 0 0	4 5 0	10 5 0	12 8 0	.....	.....
18	Rahimuddi	Ditto		0 5 0	1 0 0	5 22 0	13 14 0	12 12 0	1 2 0	13 8 0
19	Sheik Ledu	Ditto		0 6 0	1 0 0	6 2 0	15 2 0	14 8 0	0 10 0	7 8 0
20	Ganga Charan Nath ...	Harihardi		0 7 0	1 0 0	3 12 0	8 4 0	12 14 0	.....	.....
21	Mahananda Mahato ...	Ditto		0 6 0	1 0 0	3 25 0	9 1 0	13 2 0	.....	.....
22	Hari Charan Nath	Ditto		0 6 0	1 0 0	4 25 0	11 9 0	14 3 0	.....	.....
23	Habibulla	Tundi		0 5 0	1 0 0	4 0 0	10 0 0	16 2½ 0	.....	.....
24	Abdul Gafur	Munuria ...		2 0 0	7 0 0	40 0 0	100 0 0	85 0 0	15 0 0	22 8 0
25	Karim Buksh...	Ditto ...		1 0 0	3 0 0	25 0 0	62 8 0	46 2 0	16 6 0	49 2 0
26	Advait Bepari	Ditto ...		5 0 0	15 0 0	112 0 0	280 0 0	210 3 0	69 13 0	41 15 10
27	Hemchand	Ditto ...		0 12 0	2 0 0	18 0 0	45 0 0	36 10 0	8 6 0	41 14 0
28	Harchandra Bepari	Bentha ...		1 0 0	3 0 0	32 4 0	80 4 0	47 8 0	32 12 0	98 4 0
29	Charan Das	Do. ...		1 0 0	2 30 0	30 0 0	75 0 0	46 11 0	28 5 0	84 15 0
30	Raimohan Mandal	Deoli ...		2 0 0	6 0 0	40 20 0	107 4 0	82 10 0	18 10 0	27 15 0
31	Mocktal Hossein	Basalia ...		1 10 0	5 0 0	38 12 0	95 12 0	74 3 0	21 9 0	43 2 0
32	Gourchand Moudal	Chapra ...		1 0 0	3 0 0	28 0 0	70 0 0	43 14 0	21 2 0	63 6 0
33	Chunilal Mondal	Do. ...		0 15 0	2 10 0	22 20 0	56 4 0	40 7 0	15 13 0	63 4 0
34	Raj Kumar Sircar	Mandyle ...		0 7 0	0 20 0	5 3 0	12 11 0	11 3 0	1 8 0	12 14 0
35	Bochai Sirkar	Tegharia ...		1 10 0	4 20 0	37 10 0	92 8 0	69 13 0	22 11 0	45 6 0
36	Sadhu Charan Sidda ...	Akshail ...		0 10 0	1 15 0	5 4 0	12 12 0	16 11 0	.....	.....

N.B.—The khasmahal officers at first made no arrangements with the cultivators and as such could not distribute the potatoes till very late in the season and the seeds were planted in rather unprepared soil, which is responsible for the bad result. The surface caterpillars also did considerable damage.

APPENDIX VII—*contd.*

POTATO CULTIVATION, 1914—*contd.*

Dacca—concld.

No.	Names of cultivators.	Village.	Area of land.	Quantity of seed.	Outturn.	Price of outturn.	Cost of cultivation and price of seed.	PROFIT.	
								Per plot.	Per acre.
1	2	3	4	5	6	7	8	9	10
			B. K. CH.	MDS. S. CH.	MDS. S. CH.	RS. A. P.	Rs. A. P.	RS. A. P.	RS. A. P.
37	Ganesh Sidda...	Akshail ...	0 4 0	0 20 0	4 3 0	10 3 0	8 7 0	1 13 0	27 3 10
38	Dasarath Barai	Krishnanagar	0 6 8	0 35 0	10 0 12	30 0 9	17 12 0	12 4 9	113 11 2
39	Jagannath Karmakar ...	Nisanbari ...	0 3 8	0 17 8	3 22 0	8 4 0	7 6 0	0 14 0	15 2 0
40	Raju Karmakar	Ditto ...	0 7 0	1 0 0	4 2 0	10 2 0	13 3 0	.....	.....
41	Rabidas Mandal	Ditto ...	0 6 8	1 0 0	7 3 0	17 11 0	13 6 0	4 5 0	39 12 11
42	Abhimanyu Gope	Ditto ...	1 18 0	5 0 0	29 0 12	72 8 9	69 8 0	3 0 9	4 5 5
43	Iswar Chandra Mandal ...	Guita ...	0 13 0	1 30 0	10 5 0	30 5 0	28 8 0	1 13 0	8 10 0
44	Krishna Charan Choukidar	Basabari ...	0 2 0	0 9 0	0 32 0	2 0 0	5 4 0	.....	.....
45	Suryanath Deb Sarma ...	Manipur ...	0 1 0	0 5 0	0 22 0	1 6 0	4 6 0	.....	.....
46	Probodh Chandra Chakravarty.	Ramna ...	0 2 0	0 10 0	3 30 0	9 6 0	5 10 0	3 12 0	111 14 0
47	Jaladhar Mondal	Naibar ...	0 8 0	1 10 0	9 2 8	22 10 6	19 8 0	3 2 6	23 14 9
48	Haladhar Mistry	Do. ...	0 15 0	2 0 0	14 13 0	35 13 0	32 0 0	3 13 0	16 4 0
49	Ram Prosad Mistry	Nishanbari...	1 0 0	3 20 0	25 3 4	62 11 3	51 15 0	10 12 3	32 4 9
50	Purna Chandra Gope ...	Guita-Krishnanagar.	2 5 0	8 5 0	55 2 8	137 10 6	108 4 0	29 6 6	35 3 4
51	Joy Chand Bepari	Ghatarchar	0 15 0	2 0 0	16 4 4	40 4 3	33 12 0	6 8 3	26 1 0
52	Asananda Mandal	Basbari ...	0 2 0	0 5 0	2 0 8	5 0 6	4 4 0	0 12 6	23 7 0
53	Umanath Mandal	Nandakhali	0 16 0	2 10 0	20 0 0	50 0 0	36 8 0	13 8 0	57 10 0
54	Kokaram Moudal	Tetuljhora ...	1 4 0	4 10 0	35 0 0	87 8 0	61 10 0	25 14 0	64 11 0
55	Sabed Khan	Ditto ...	0 16 0	2 10 0	38 0 0	95 0 0	50 7 0	44 9 0	167 1 9
56	Haladhar Mondal	Ditto ...	0 16 0	2 10 0	25 0 0	62 8 0	48 8 0	14 0 0	52 8 0
57	Krishna Kumar Mandal ...	Sudharchar	0 7 0	1 0 0	12 20 0	31 0 0	22 8 0	8 12 0	75 0 0
58	Hamai Dewan	Parbagaon.	0 12 0	1 20 0	5 10 0	13 2 0	21 6 0	.....	.....
59	Badshahi Haldar	Ditto	0 7 0	1 0 0	7 3 0	17 11 0	16 0 0	1 11 0	14 7 10
60	Ilim Dewan	Ditto	0 8 0	1 10 0	6 10 0	15 10 0	18 2 0	.....	.....
61	Jamai Dewan	Ditto	0 3 0	0 20 0	5 5 0	12 13 0	9 8 0	3 5 0	66 4 0
62	Badan Haldar	Ditto	0 4 0	0 20 0	5 10 0	13 2 0	10 6 0	2 12 0	55 0 0
63	Amri Haldar	Ditto	0 1 0	0 5 0	1 10 0	3 2 0	4 12 0	.....	.....
64	Bagai Haldar	Ditto	0 1 0	0 5 0	1 20 0	3 12 0	5 0 0	.....	.....
65	Michhil Moral Hazi ...	Baghra ...	0 6 0	1 10 0	5 3 0	12 11 0	15 8 0	.....	.....
66	Panchu Mal	Do. ...	0 6 0	1 10 0	8 15 0	20 15 0	16 11 0	4 4 0	62 8 0
67	Sadaraddi Gachhi	Do. ...	0 6 0	1 10 0	6 18 0	16 2 0	15 8 0	0 10 0	6 4 0
68	Abdu. Gani Talukdar ...	Do. ...	0 2 0	0 20 0	4 3 0	10 3 0	9 2 0	1 1 0	31 14 6
69	Madan Talukdar	Do. ...	0 6 0	1 10 0	7 35 0	19 11 0	18 8 0	1 3 0	11 14 0
70	Sheikh Reajuddin	Do. ...	0 6 0	1 10 0	7 35 0	19 11 0	17 11 0	2 0 0	20 0 0
71	Jaharaddi Chowkidar ...	Do. ...	0 6 0	1 10 0	8 3 0	20 3 0	18 8 0	1 13 0	18 2 0
72	Sonatan Mandal	Angaira ...	0 14 8	2 10 0	25 38 0	64 14 0	45 6 0	19 8 0	80 12 6
73	Manda Mandal	Do. ...	0 8 0	1 5 0	11 10 0	28 2 0	22 8 0	5 10 0	42 3 0
74	Lalbehari Kaviraj	Chakighata	0 8 0	0 30 0	5 0 0	12 8 0	11 12 0	0 12 0	5 10 0
75	Sheikh Abdul Gafur ...	Hatkora ...	0 5 0	0 30 0	5 7 0	12 15 0	12 8 0	0 7 0	5 4 0
76	Sheikh Nidhan	Bistapur ...	0 12 0	2 0 0	12 10 0	30 10 0	27 9 0	3 1 0	15 5 0
77	,, Kalam Pradhan ...	Chas Mastul	0 12 0	2 0 0	11 7 0	28 9 0	27 6 0	1 3 0	5 15 0
78	Abdul Gafur	Bistapur ...	0 18 8	3 14 0	22 0 0	55 0 0	48 8 0	6 8 0	21 7 8
79	Sheikh Nasimuddi	Bandoita ...	0 5 0	0 30 0	5 5 0	12 13 0	12 12 0	0 1 0	0 12 0
80	,, Akbar Bepari ...	Char Matia	0 2 8	0 15 0	4 3 0	10 3 0	8 12 0	1 7 0	25 8 0
81	,, Kanu Bepari ...	Char Hijuli	0 12 0	2 0 0	11 15 0	30 15 0	26 6 0	4 9 0	22 13 0
82	,, Ilim Prodhan ...	Betila ...	0 2 8	0 15 0	3 15 0	7 15 0	8 6 0	.....	.....
83	,, Nabu	Char Ajanpur	0 12 0	2 0 0	17 0 0	42 13 0	34 7 0	8 6 0	41 14 0
84	,, Janik	Abudanga	0 5 0	0 30 0	6 0 0	15 0 0	13 2 0	1 14 0	22 0 0
85	,, Jonabali	Chakmirpur	0 5 0	1 0 0	6 0 0	15 0 0	14 8 0	0 8 0	6 0 8

Khas mahal.

N. B.—The khasmahal officers at first made no arrangements with the cultivators and as such could not distribute the potatoes till very late in the season. The seeds were planted in rather unprepared soil, which is responsible for the bad result.

RESULTS OF POTATO CULTIVATION, 1914.

Mymensingh.

No.	Names of cultivators.	Village.	Area of land.	Quantity of seeds.	DATE.		Outturn.	Price of outturn.	Cost of cultivation and price of seeds.	PROFIT.	
					Sowing.	Harvesting.				Per plot.	Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K. CH.	M. S. CH.			M. S. CH.	RS. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1	Ranjan Sarkar	Bhatara ...	0 5 0	1 0 0	25-10-14	24-2-15	10 25 0	26 9 0	15 0 0	11 9 0	138 13 0
2	Rafikuddin Ahamed	Dharmakura	2 10 0	5 0 0	28-10-14	23-2-15	125 0 0	312 8 0	75 0 0	237 8 0	285 0 0
3	Indu Sarkar	Pakhimari ...	0 18 0	2 30 0	26-10-14	4-3-15	25 0 0	62 8 0	41 4 0	21 4 0	70 13 4
4	Dinesh Chandra Chakravarty	Beltia	0 4 0	0 20 0	27-10-14	10-3-15	10 0 0	25 0 0	7 8 0	17 8 0	262 8 0
5	Nurmamud Sirkar	Pakhimari ...	0 5 0	0 30 0	28-10-14	26-2-15	10 20 0	26 4 0	11 4 0	15 0 0	180 0 0
6	Ha an Mir	Krishnapur ...	1 5 0	4 0 0	23-10-14	24-2-15	36 20 0	91 4 0	60 0 0	31 4 0	75 0 0
7	Hara Prasanna Gangopadhyay	Jamalpur ...	0 10 0	1 32 0	26-10-14	23 2-15	15 0 0	37 8 0	27 0 0	10 8 0	63 0 0
8	Pitambar Das	Beltia ...	1 0 0	3 0 0	27-10-14	4-3-15	45 0 0	112 8 0	45 0 0	67 8 0	202 8 0
9	Madari Akanda	Pakhimari ...	0 10 0	1 20 0	23-10-14	26-2-15	13 26 0	34 2 0	22 8 0	11 10 0	69 12 0
10	Sarifulla Mandal	Ditto ...	0 13 0	2 20 0	24-10-14	27-2-15	30 20 0	76 4 0	37 8 0	38 12 0	178 13 6
11	Baharuddin Sirkar	Sreerampur ...	0 10 0	1 20 0	28-10-14	28-2-15	20 20 0	51 4 0	22 8 0	28 12 0	172 8 0
12	Kalamuddin Sirkar	Ditto ...	0 12 0	2 0 0	25-10-14	20-2-15	18 8 0	45 8 0	30 0 0	15 8 0	77 8 0
13	Kudratulla Mandal	Gorakanda ...	0 4 0	0 20 0	26-10-14	25-2-15	7 30 0	19 6 0	7 8 0	11 14 0	178 2 0
14	Nayan Sirkar	Berapathalia	0 8 0	1 0 0	26-10-14	2-3-15	22 10 0	55 10 0	15 0 0	40 10 0	304 11 0
15	Laskar Mandal	Ditto ...	0 5 0	1 0 0	26-10-14	25-2-15	12 30 0	31 41 0	15 0 0	16 14 0	202 8 0
16	Sher Mamud Sirkar	Ditto ...	0 4 0	0 20 0	24-10-14	28-2-15	10 0 0	25 0 0	7 8 0	17 8 0	262 8 0
17	Nazir Mamud Sarkar	Ditto ...	0 5 0	0 30 0	24-10-14	24-2-15	14 0 0	35 0 0	11 4 0	23 12 0	285 0 0

APPENDIX VII—*contd.*

Mymensingh—contd.

No.	Names of cultivators.	Village.	Area of land.	Quantity of seeds.	Date. Sowing.	Date. Harvesting.	Outturn.	Price of outturn.	Cost of cultivation and price of seeds.	Profit. Per plot.	Profit. Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K. CH.	M. S. CH.			M. S. CH.	Rs. A. P.	Rs. A. P.	Rs. A. P	Rs. A. P.
18	Mahar Shaikh	Bhengura ...	0 2 0	0 10 0	26-10-14	25-2-15	11 0 0	27 8 0	3 12 0	23 12 0	712 8 0
19	Joymal Prodhan	Ditto ...	0 15 0	2 10 0	27-10-14	23-2-15	23 35 0	59 11 0	33 11 0	25 15 0	103 12 0
20	Bashir Shaikh	Ditto ...	0 14 0	2 0 0	24-10-14	24-2-15	25 16 0	63 8 0	30 0 0	33 8 0	143 9 6
21	Genda Shaikh	Ditto ...	0 2 0	0 10 0	27-10-14	3-3-15	4 20 0	11 4 0	3 12 0	7 8 0	225 0 0
22	Ashmat Shaikh	Ditto ...	0 4 0	0 20 0	28-10-14	26-2-15	9 35 0	24 11 0	7 8 0	17 3 0	257 13 0
23	Inuddin Shaikh	Ditto ...	0 4 0	0 20 0	27-10-14	23-2-15	8 10 0	20 10 0	7 8 0	13 2 0	196 14 0
24	Gafar Shaikh	Ditto ...	0 4 0	0 20 0	28-10-14	2 3-15	15 0 0	37 8 0	7 8 0	30 0 0	450 0 0
25	Bocha Mudi	Ditto ...	0 4 0	0 20 0	26-10-14	3-0-15	7 25 0	19 1 0	7 8 0	11 9 0	173 7 0
26	Saichai	Ditto ...	0 4 0	0 20 0	1-11-14	2-3-15	7 35 0	19 11 0	7 8 0	12 3 0	182 13 0
27	Shyama Charan Mauzumdar ...	Gangapara ...	0 3 0	0 12 8	28-10-14	3-3-15	4 15 0	10 15 0	4 11 0	6 4 0	125 0 0
28	Davendra Chandra Mazumdar	Ditto ...	0 3 0	0 30 0	2- 2-14	28-2-15	12 5 0	30 5 0	11 4 0	19 1 0	381 4 0
29	Hem Chandra Bakshi	Ditto ...	0 4 0	0 20 0	4-11-14	28-2-15	6 10 0	15 4 0	7 8 0	7 12 0	116 4 0
30	Mofezulla Khan	Dangargor ...	0 1 0	0 5 0	3-11-14	1-3-15	3 0 0	7 8 0	1 14 0	5 10 0	337 8 0
31	Nekjan Khalashi	Ditto ...	0 2 0	0 10 0	1-11-14	3-3-15	5 15 0	13 7 0	3 12 0	9 11 0	290 10 0
32	Sreenath Modak	Polabhanda ...	0 4 0	0 20 0	2-11-14	5-3-15	7 20 0	18 12 0	7 8 0	11 4 0	168 12 0
33	Nuria Kaibarta	Ditto ...	0 3 0	0 15 0	3-11-14	4-3-15	7 0 0	17 8 0	5 10 0	11 14 0	237 8 0
34	Eratulla Shaikh	Ditto ...	0 1 0	0 5 0	5-11-14	25-2-15	2 30 0	6 14 9	1 14 0	5 0 0	300 0 0
35	Safarulla Mondal	Ditto ...	0 2 0	0 7 0	2-11-14	24-2-15	2 22 0	8 14 0	2 13 0	6 1 0	181 14 0
36	Superintendent of Raja Bahadur's garden.	Mymensingh	1 0 0	3 0 8	25-10-14	20-2-15	30 28 0	76 4 0	45 0 0	31 4 0	93 12 0
37	Jabbar Shekh	Golgonda ...	0 5 0	1 0 0	26-10-14	25-2-15	30 10 0	75 10 0	15 0 0	60 10 0	727 8 0
38	Shaikh Basar Munshi	Maizbari ...	0 2 0	0 10 0	26-10-14	2-3-15	5 30 0	14 6 0	3 12 0	10 10 0	318 12 0
39	,, Samiruddin Munshi ...	Ditto ...	0 5 0	0 30 0	28-10-14	4-3-15	14 0 0	35 0 0	11 4 0	23 12 0	285 0 0
40	Girish Chandra Dey	Khagdhar ...	0 3 0	0 20 0	26-10-14	2-3-15	6 0 0	15 0 0	7 8 0	7 8 0	150 0 0
41	Shaikh Sarip	Ditto ...	0 4 0	0 20 0	27-11-14	28-2-15	6 0 0	15 0 0	7 8 0	7 8 0	112 8 0
42	Rahamatulla Munshi	Mrizapur ...	0 4 0	0 20 0	26-10-14	1-3-15	2 20 0	11 4 0	7 8 0	3 12 0	56 4 0
43	Izjat Mondal	Maizbari ...	0 2 0	0 8 0	26-10-14	28-2-15	3 2 0	7 10 0	3 0 0	4 10 0	138 12 0
44	Kendu Mondal	Ditto ...	0 2 0	0 10 0	28-10-14	28-2-15	4 20 0	11 4 0	3 12 0	7 8 0	225 0 0
45	Mamudjan Mondal	Mrizapur ...	0 4 0	0 20 0	2-11-14	21-2-15	6 30 0	17 7 0	7 8 0	9 15 0	149 1 0
46	Shekur Mamud Sirkar ...	Bahadurpur ...	0 2 0	0 10 0	1-11-14	26-2-15	3 0 0	7 8 0	3 12 0	3 12 0	112 8 0
47	Basanta K. Banarjee	Maminpur ...	3 0 0	10 0 0	25-10-14	25-2-15	320 10 0	800 10 0	150 0 0	650 10 0	650 10 0
48	Izjat Shaikh	Nidhar char	0 5 0	0 30 0	25-10-14	26-2-15	13 0 0	30 0 0	11 4 0	18 12 0	225 0 0
49	Abdul Mollah	Ditto ...	0 5 0	2 20 0	25-10-14	28-2-15	20 0 0	50 0 0	37 8 0	12 8 0	90 0 0
50	Samiruddin Shaikh	Ditto ...	0 3 0	0 10 0	31-10-14	25-2-15	4 0 0	10 0 0	3 12 0	6 4 0	125 0 0
51	Ali Akanda	Ditto ...	0 6 0	0 32 0	24-10-14	23-2-15	19 0 0	47 8 0	12 0 0	35 8 0	355 0 0
52	Jafir Shaikh	Ditto ...	0 4 0	0 20 0	22-10-14	25-2-15	10 10 0	25 10 0	7 8 0	18 2 0	271 14 0
53	Ashmat Ali Shaikh	Ditto ...	0 4 0	0 10 0	27-10-14	21-2-15	3 35 0	9 11 0	3 12 0	5 15 0	89 1 0
54	Hosen Ali Shaikh	Ditto ...	0 2 0	0 10 0	26-10-14	3-3-15	4 25 0	11 9 0	3 12 0	7 13 0	234 6 0
55	Shaikh Allm Bipari	Ditto ...	0 5 0	0 25 0	28-10-14	1-3-15	12 0 0	30 0 0	9 6 0	20 10 0	247 8 0
56	Azit Sarkar	Ditto ...	0 4 0	0 20 0	25-10-14	28-2-15	10 0 0	25 0 0	7 8 0	17 8 0	262 8 0
57	Fazu Sarkar	Ditto ...	0 2 0	0 10 0	1-11-14	3-3-15	4 0 0	10 0 0	3 12 0	6 4 0	187 8 0
58	Mamudali Shaikh	Ditto ...	0 2 0	0 10 0	2-11-14	3 3-15	3 20 0	8 12 0	3 12 0	5 0 0	150 0 0
59	Shaikh Khoda Box	Ditto ...	0 2 0	0 10 0	1-11-14	2-3-15	8 10 0	20 10 0	3 12 9	16 14 0	506 4 0
60	Pran Kumar Kundu	Tarati ...	0 4 0	0 20 0	3-11-14	4-3-15	5 30 0	14 6 0	7 8 0	6 14 0	103 2 0
61	Roshen Ali Shaikh	Do. ...	0 2 0	0 10 0	27-10-14	28-2-15	3 0 0	7 8 0	3 12 0	3 12 0	112 8 0
62	Golap Ali Shaikh	Do. ...	0 2 0	0 10 0	26-10-14	26-2-15	3 0 0	7 8 0	3 12 0	3 12 0	112 8 0
63	Amiruddin Shaikh	Kaladia ...	0 2 0	0 10 0	25-10-14	27-2-15	3 5 0	7 13 0	3 12 0	4 1 0	121 14 0
64	Dengu Shaikh	Tarati ...	0 1 0	0 5 0	26-10-14	28-2-15	2 0 0	5 0 0	1 14 0	3 2 0	187 8 0
65	Kasem Shaikh	Do. ...	0 1 0	0 5 9	27-10-14	27-2-15	2 20 0	6 4 0	1 14 0	4 6 0	262 0 0
66	Samiruddin Khan	Kalmohana ...	0 1 0	0 5 0	1-11-14	28-2-15	2 20 0	6 4 0	1 14 0	4 6 0	262 8 0
67	Amiruddin Khan	Ditto ...	0 1 0	0 2 0	25-10-14	26-2-15	2 0 0	5 0 0	0 12 0	4 4 0	255 0 0
68	Chikonali Shaikh	Ditto ...	0 1 0	0 5 0	28-10-14	2-3-15	1 20 0	3 12 0	1 14 0	1 14 0	182 8 0
69	Srish Ch. shome	Kishoreganj ...	0 5 0	0 30 0	26-10-14	21-2-15	12 10 0	30 10 0	11 4 0	19 6 0	232 8 0
70	Kailash Ch. Chakravarty ...	Kamalpur ...	1 0 0	3 20 0	26-10-14	24-2-15	22 0 0	55 0 0	52 8 0	2 8 0	7 8 0
71	Bepin Ch. Biswas	Jashodal ...	0 5 0	1 0 0	28-10-14	25-2-15	31 10 0	78 2 0	15 0 0	63 2 0	757 8 0
72	Kumud B. Roy	Kishoreganj ...	0 4 0	0 20 0	26-10-14	24-2-15	6 0 0	15 5 0	7 8 0	7 8 0	112 8 0
73	Bepin Ch. Roy	Jashodal ...	0 4 0	0 20 0	26-10-14	25-2-15	6 5 0	15 5 0	7 8 0	7 13 0	117 3 0
74	Kailash Ch. Roy	Kamalpur ...	9 0 0	30 0 0	26-10-14	23-2-15	750 0 0	1,875 0 0	450 0 0	1,425 0 0	475 0 0
75	Joynuddin	Bharibpur ...	3 0 0	10 0 0	28-10-14	23-3-15	370 38 0	927 6 0	150 0 0	777 6 0	777 6 0
76	Laimamud	Kamalpur ...	3 0 0	10 0 0	27-10-14	24-2-15	250 0 0	625 0 0	150 0 0	475 0 0	475 0 0
77	Rahamatulla Shaikh	Shambhupur ...	0 5 0	0 15 0	22-10-14	26-2-15	16 0 0	40 0 0	20 10 0	19 6 0	232 8 0
78	Mamud Ali Shaikh	Gochamara ...	1 0 0	3 0 0	25-10-14	23-2-15	58 0 0	145 0 0	45 0 0	100 0 0	300 0 0
79	Ibrahim Shaikh	Kamalpur ...	0 15 0	2 0 0	24-10-14	26-2-15	25 0 0	62 8 0	30 0 0	32 8 0	130 0 0
80	Hosenali Shaikh	Bhairabpur ...	2 2 0	6 0 0	3-11-14	9-3-15	110 0 0	275 0 0	90 0 0	185 0 0	264 4 7
81	Sobedar Bepari	Ditto ...	1 0 0	4 0 0	3-11-14	23-2-15	121 0 0	302 8 0	60 0 0	242 8 0	727 8 0
82	Bhairab Bepari	Ditto ...	1 0 0	3 0 0	5-11-14	8-3-15	80 0 0	200 0 0	45 0 0	156 0 0	465 0 0
83	Kalloo Bepari	Ditto ...	1 16 0	4 0 0	8-11-14	10-2-15	90 0 0	225 0 0	60 0 0	165 0 0	275 0 0
84	Hafezuddin Munshi	Kamalpur ...	1 9 0	5 0 0	30-11-14	15-2-15	60 0 0	150 0 0	75 0 0	75 0 0	155 2 9
85	Taru Bepari	Bhairabpur ...	0 5 0	9 32 0	4-11-14	2-3-15	12 0 0	00 0 0	8 10 0	21 6 0	256 8 0
86	Shahar Ali Bepari	Kamalpur ...	1 11 0	5 0 0	4-11-14	21-2-15	50 0 0	125 0 0	75 0 0	50 0 0	96 12 5
87	Abdul Shaikh	Ditto ...	0 19 0	1 0 0	1-11-14	23-2-15	22 0 0	62 8 0	15 0 0	47 8 0	285 0 0
88	Prakash Ch. Roy	Ditto ...	0 6 0	0 20 0	3-11-14	1-3-15	6 0 0	15 0 0	7 8 0	7 8 0	75 0 0
89	Abid Shaikh	Bhairabpur ...	0 7 0	1 0 0	2-11-14	7-3-15	19 0 0	47 8 0	15 0 0	32 8 0	278 9 1
90	Sekandar Shaikh	Ditto ...	1 0 0	3 0 0	2-11-14	7-3-15	50 0 0	125 0 0	45 0 0	80 0 0	240 0 0
91	Kishori Lal Sen Gupta ...	Kishoreganj ...	0 4 0	0 20 0	13-11-14	5-3-15	10 0 0	25 0 0	7 8 0	17 8 0	262 8 0
92	Fazluddin Ahamed	Sarishabari ...	0 16 0	2 20 0	26-10-14	23-2-15	25 0 0	62 8 0	37 8 0	25 0 0	93 12 0
93	Zenatali Ahmed	Akashi ...	0 10 0	1 2 0	10-11-14	19-2-15	18 30 0	46 14 0	15 12 0	31 2 0	116 12 0
94	Naimuddin Ahamed	Do. ...	9 2 0	0 12 0	11-11-14	21-2-15	3 35 0	9 11 0	4 8 0	5 3 0	155 10 0
95	Piyarulla Mondal	Baira ...	0 2 0	0 15 0	5-11-14	11-2-15	3 30 0	9 6 0	5 10 0	3 12 0	142 8 0
96	Pagu Khan	Do. ...	0 2 0	0 10 0	8-11-14	12-2-15	3 20 0	8 12 0	3 12 0	5 0 0	150 0 0
97	Eakobali Sarkar	Chachiabanda ...	0 1 0	0 10 0	7-11-14	26-2-15	2 36 0	7 4 0	3 12 0	3 8 0	210 0 0
98	Aftabuddin Munshi	Baira ...	0 2 0	0 10 0	5-11-14	24-2-15	5 0 0	12 8 0	3 12 0	8 12 0	262 8 0
99	Md. Easin Sarkar	Akashi ...	1 0 0	0 31 8	10-11-14	10-2-15	35 22 0	88 14 0	11 13 0	77 1 0	231 3 0
100	Abdulali Shaikh	Do. ...	0 1 0	0 5 4	7-11-14	23-2-15	2 3 0	5 3 0	1 15 6	3 3 6	193 2 0
101	Kutab Mandal	Kurulia ...	0 1 0	0 5 0	8-11-14	27-2-15	2 0 0	5 0 0	1 15 6	3 0 6	181 14 0
102	Nachar Mondal	Baira ...	0 1 0	0 3 0	10-11-14	23-2-15	1 25 0	4 1 1	1 2 0	2 15 0	176 7 0
103	Jinatali Mondal	Do. ...	0 1 0	0 6 0	11-11-14	19-2-15	1 20 0	3 12 0	2 4 0	1 8 0	90 0 0
104	Fazu Mondal	Do. ...	0 2 0	0 10 0	9-11-14	17-2-15	5 0 0	12 8 0	3 12 0	7 12 0	262 8 0
105	Saboo Akanda	Do ...	0 3 0	0 21 0	15-11-14	18-2-15	6 0 0	15 0 0	7 14 0	8 2 0	142 8 0
106	Ananda Kishore Chakravarty	Maizbari ...	0 1 0	0 7 8	20-11-14	22-2-15	2 0 0	5 0 0	2 13 0	2 3 0	131 4 0
107	Ram Sundar Sutradhar ...	Binnafair ...	0 3 0	0 15 0	25-11-14	24-2-15	9 0 0	22 8 0	5 10 0	16 14 0	337 8 0
108	Farezulla Shekh	Chachiabanda ...	0 3 0	0 15 0	27-11-14	23-2-15	6 0 0	15 0 0	5 10 0	9 6 0	187 8 0
109	Johir Mandal	Baira ...	0 1 0	0 5 0	21-11-14	24-2-15	1 22 0	3 14 0	1 14 0	2 0 0	120 0 0
110	Hosen Munshi	Porabari ...	0 4 0	0 25 0	23-11-14	25-2-15	10 0 0	25 0 0	9 6 0	15 10 0	234 6 0
111	Kanu Sarkar	Baira ...	0 1 0	0 4 0	23-11-14	24-2- 5	2 0 0	5 0 0	1 8 0	3 8 0	210 0 0
112	Prakash Chandra Roy	Netrakona ...	0 2 0	0 10 0	26-11-14	23-2-15	7 20 0	18 12 0	3 12 0	15 0 0	450 0 0
113	Akhoy Kumar Sen	Kumree ...	0 3 0	0 20 0	23-10-14	28-2-15	18 0 0	45 6 0	7 8 0	37 8 0	750 0 0
114	Hamid Uddin Khan	Katlee ...	0 17 0	2 25 0	23-10-14	24-2-15	57 30 0	144 6 0	39 6 0	105 0 0	370 9 5
115	Hafiz Uddin Khan	Do. ...	0 4 0	0 20 0	27- 0-14	25-2-15	12 0 0	30 0 0	7 8 0	22 8 0	337 8 0
116	Mahim Chandra Sen	Kailaty ...	0 4 0	0 20 0	28-10-14	23-2-15	14 10 0	35 10 0	7 8 0	28 2 0	241 14 0
117	Judhisthir Nath Chowdhuri ...	Hossenpur ...	0 3 0	0 15 0	26-10-14	24-2-15	8 0 0	20 0 0	5 19 0	14 6 0	287 8 0
118	Mahi Uddin Ahmed	Medini ...	0 4 0	0 20 0	27-10-14	23-2-15	12 20 0	31 4 0	7 8 0	23 12 0	356 4 0

APPENDIX VII—*contd.*

Mymensingh—concld.

No.	Names of cultivators.	Village.	Area of land.	Quantity of seeds.	Date.		Outturn.	Price of outturn.	Cost of cultivation and price of seed.	Profit.	
					Sowing.	Harvesting.				Per plot.	Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K. CH.	M. S. CH.			M. S. CH.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
119	Manzuddin Ahamed	Mailakanda ...	0 16 0	2 0 0	28-10-14	24-2-15	40 0 0	100 0 0	30 0 0	70 0 0	262 8 0
120	Muhammad Nurel Hossen ...	Dhala ...	0 7 0	1 0 0	27-10-14	24-2-15	24 0 0	60 0 0	15 0 0	45 0 0	385 12 0
121	Dhirendra Chandra Roy ...	Shibnagar ...	0 15 0	2 0 0	24-10-14	23-2-15	40 0 0	100 0 0	30 0 0	70 0 0	280 0 0
122	Sonatan Shaha Talugdar ...	Malini ...	0 2 0	0 10 0	29-10-14	26-2-15	6 0 0	15 0 0	3 12 0	11 4 0	337 8 0
123	Chairman of Municipality ...	Netrakona ...	0 3 0	0 20 0	22-10-14	28-2-15	6 0 0	15 0 0	7 8 0	7 8 0	150 0 0
124	Jadu Nath Chakravorty ...	Ditto ...	0 1 0	0 5 0	23-10-14	26-2-15	1 20 0	3 12 0	1 14 0	1 14 0	112 8 0
125	Sashi Kamal Chakravorty ...	Ditto ...	0 1 0	0 5 0	24-10-14	27-2-15	1 22 0	3 14 0	1 14 0	2 0 0	120 0 0
126	Probhat Chandra Chakravorty	Ditto ...	0 1 0	0 3 0	25-10-14	22-2-15	1 20 0	3 12 0	1 2 0	2 10 0	157 8 0
127	J. M. Chowdhury, Deputy Collector.	Ditto ...	0 1 0	0 5 0	23-10-14	28-2-15	1 21 0	3 13 0	1 14 0	1 15 0	116 4 0
128	Guroo Training school	Ditto ...	0 1 0	0 5 0	23-10-14	24-2-15	1 22 0	3 14 0	1 14 0	2 0 0	120 0 0
129	Ishan Chandra Chowdhury ...	Ditto ...	0 1 0	0 4 0	24-10-14	23-2-15	1 20 0	3 12 0	1 8 0	2 4 0	135 0 0
130	Durga Charan Dutta	Ditto ...	0 1 0	0 7 8	27-10-14	27-2-15	1 25 0	4 1 0	2 13 0	1 4 0	75 0 0
131	Munshi Joeherali	Nagra ...	0 1 0	0 7 8	25-10-14	26-2-15	2 5 0	5 5 0	2 13 0	2 8 0	150 0 0
132	Kristoo Charan Chowdhury ...	Netrakona ...	0 1 0	0 3 0	26-10-14	24-2-15	1 20 0	3 12 0	1 2 0	2 10 0	157 8 0
133	Sudhir Chandra Ghose	Ditto ...	0 1 0	0 5 0	26-10-14	23-2 15	1 24 0	4 0 0	1 14 0	2 2 0	127 8 0
134	Iswor Chandra Sarkar	Manaharpur	0 1 0	0 3 0	26-10-14	23-2-15	1 23 0	3 15 0	1 2 0	2 13 0	168 12 0

Faridpur.

Serial No.	Names of cultivators.	Village.	Area of plot.	Quantity of seeds.	Date.		Outturn.	Price of outturn.	Cost of cultivation and price of seeds.	Profit.	
					Sowing.	Harvesting.				Per plot.	Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K. CH.	MD. S. CH.			MD. S. CH.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
1	Rahimaddi Bepari	Charjanajat	0 5 0	1 0 0	20-11-14	28-2-15	8 32 0	26 6 6	15 4 0	9 2 6	109 14 0
2	Helaluddin Munshi	Rajapur ...	0 10 0	2 0 0	15-11-14	23-2-15	18 36 0	56 11 3	30 8 0	26 6 3	314 7 0
3	Sheikh Komaraddi	Baburchar ...	0 5 0	1 0 0	16-11-14	3-3-15	6 35 0	20 10 0	15 4 0	5 6 0	64 8 0
4	,, Amir Molla	Ditto ...	0 5 0	1 0 0	16-11-14	26-2-15	4 2 0	12 2 6	15 4 0	.....	.....
5	,, Sabedali	Ditto ...	0 5 0	1 0 0	14-11-14	24-2-15	7 33 0	22 11 9	15 4 0	7 7 9	89 13 0
6	,, Mararaddi	Ditto ...	0 5 0	1 0 0	16-11-14	25-2-15	6 18 0	19 5 6	15 4 0	4 1 6	49 2 0
7	,, Azgar	Ditto ...	0 5 0	1 0 0	15-11-14	24-2-15	8 14 0	25 0 9	15 4 0	9 12 9	117 9 0
8	Ujir Mamud	Ditto ...	0 5 0	1 0 0	15-11-14	22-2-15	3 35 0	11 10 0	15 4 0	.....	.....
9	Hadulla Hazi	Ditto ...	0 5 0	1 0 0	15-11-14	26-2-15	8 6 0	24 7 3	15 4 0	9 3 3	109 7 0
10	Adu Hazi	Ditto ...	0 5 0	1 0 0	15-11-14	27-2-15	5 26 0	16 15 3	15 4 0	1 11 3	20 7 0
11	Muhammad Matubbar	Ditto ...	0 5 0	1 6 0	14-11-14	2-3-15	11 7 0	33 8 6	15 4 0	18 4 6	219 6 0
12	Ketabdi Matubbar	Madhumollargram.	2 14 10	9 10 0	20-11-14	25-2-15	65 12 0	197 4 0	149 7 0	47 13 0	114 4 9
13	Babu Rashik Lal Basu ...	Sadarpur ...	0 1 4	0 10 0	18-11-14	2-3-15	1 35 0	5 10 0	3 13 0	1 13 0	87 0 0
14	,, Heramba Kumar Ghosh	Ditto ...	0 1 4	0 10 0	18-11-14	2-3-15	2 0 0	6 0 0	3 13 0	2 3 0	105 0 0
15	,, Radhika Mohan Lahiri	Korakdi ...	0 10 0	2 0 0	25-11-14	15-3-15	23 6 0	69 7 0	30 8 0	38 15 0	233 10 0
16	Gay Jaddi Bepari	Khatra ...	0 7 0	1 25 0	10-11-14	8-3-15	12 20 0	31 4 0	22 10 9	8 9 3	73 0 0
17	Sheikh Naser	Ditto ...	0 10 0	2 0 0	15-11-14	8-3-15	15 0 0	37 8 0	27 12 0	9 12 0	58 8 0
18	Munshi Umedali	Ditto ...	0 10 0	2 0 0	11-11-14	8-3-15	13 32 0	34 8 0	24 12 0	9 12 0	58 8 0
19	Manik Munshi	Khaminar-Bag.	0 15 0	3 0 0	11-11-14	8-3-15	31 8 0	77 8 0	42 10 0	34 14 0	139 8 0
20	Yar Maun	Gadadhurdi ...	0 7 0	1 20 0	11-11-14	8-3-15	16 0 0	40 0 0	26 5 0	13 11 0	116 10 0
21	Kamuddi Khan	Khaminur Bag.	0 5 0	1 0 0	19-10-14	11-3-15	10 27 0	27 7 0	14 14 0	12 9 0	150 12 0
22	Sheikh Offajaddi	Gadadhardi ...	0 10 0	2 0 0	17-11-14	11-3-15	13 6 0	32 10 0	26 12 6	5 14 0	35 4 0
23	,, Aijaddi	Ghaura ...	0 10 0	2 0 0	17-11-14	11-3-15	9 16 0	23 8 0	23 12 0	.....	.....
24	Rayajaddi Biswas	Ditto ...	0 5 0	1 0 0	17-11-14	11-3-15	8 28 0	21 11 0	15 14 0	5 9 0	66 12 0
25	Shaikh Babur Ali	Gadadhardi ...	0 10 0	2 0 0	8-11-14	12-3-15	17 21 0	42 8 0	26 12 0	15 14 0	95 4 0
26	,, Gayjaddi	Ghanru ...	0 8 0	1 32 0	8-11-14	12-3-15	16 14 0	40 14 0	29 9 0	16 5 0	121 9 0
27	Karaman Khalifa	Do. ...	0 5 0	1 0 0	6-11-14	12-3-15	16 7 0	40 7 0	16 14 0	23 9 0	282 12 0
28	Aijaddi Sikder	Do. ...	1 10 0	6 0 0	25-11-14	7-3-15	56 33 0	142 1 0	80 4 0	61 13 0	123 10 0
29	Shaikh Rayajaddi	Chauki Ghata	0 3 0	0 20 0	20-11-14	7-3-15	4 3 0	10 3 0	8 6 0	1 12 0	35 0 0
30	Abdur Rahaman Khan ...	Khaminar Bag	0 7 0	1 20 0	18-11-14	11-3-15	14 18 0	36 2 0	10 3 0	15 3 0	121 8 0
31	Jay Chandra Patni	Ghaura ...	0 5 0	0 35 0	9-2 14	13-3-15	9 22 0	24 5 3	14 7 0	9 15 0	119 4 0
32	Gopal Khan	Khaminar Bag	0 2 8	0 20 0	9-1-14	12-3-15	3 13 0	8 3 0	7 7 0	0 14 0	21 0 0
33	Sadan Mollah	Narani Kandi	1 0 0	4 0 0	18-11-14	12-3-15	45 18 0	113 10 0	83 8 0	5 2 0	15 6 0
34	Azahar-uddin Laskar	Daharpur ...	0 1 0	0 10 0	18-11-14	12-3-15	2 38 0	7 6 0	4 11 6	2 10 6	159 6 0
35	Dinesh Chandra Rahut ...	Ghaura ...	0 10 0	2 0 0	12-11-14	10-3-15	19 18 0	48 10 0	28 12 0	19 14 0	119 4 0
36	Shaikh Elem	Gadadhurdi ...	0 2 0	0 20 0	14-11-14	11-3-15	4 31 0	10 15 0	8 7 0	2 8 0	75 0 0
37	Banamali Chandra	Ghaura ...	0 2 9	0 20 0	14-11-14	11-3-15	3 8 0	7 15 0	7 7 0	0 8 0	15 0 0
38	Maulvi Abdul Gafur	Nurpur ...	0 5 4	1 0 0	48-11-14	13-3-15	10 3 0	25 3 0	15 14 0	9 5 0	111 12 0
39	Shaikh Kazem	Daharpur ...	0 5 0	1 0 0	15-11-14	7-3-15	9 25 0	24 12 0	15 14 0	8 13 0	105 12 0
40	Ainaddi Shaikh	Do. ...	0 5 0	1 0 0	15-11-14	7-3-15	17 35 0	43 15 0	18 14 0	25 3 0	302 4 0
41	Adiladdi Shaikh	Sharipabad ...	0 10 0	2 0 0	22-11-14	10-3-15	8 31 4	21 15 0	25 12 0	.....	.....
42	Taraprasanna Roy	Daparpur ...	0 1 0	0 10 0	25-11-14	12-3-15	0 30 0	1 14 0	1 13 0	0 1 0	3 12 0
43	Asan Matau	Gadadhardi ...	0 5 0	1 0 0	25-11-14	10-3-15	12 18 0	31 2 0	14 14 0	16 4 0	195 0 0
44	Shaikh Mojamel	Ditto ..	0 5 0	1 0 0	25-11114	10-0-15	8 34 0	22 2 0	15 15 0	6 4 0	75 0 0
45	Chap Mollik	Ditto ...	0 5 0	1 0 0	30-11-14	13-3-15	10 35 0	27 3 0	15 14 0	11 5 0	135 12 0
46	Eslam Khan	Ditto ...	0 5 0	1 0 0	30-11-14	10-3-15	11 22 0	28 14 0	16 14 0	12 0 0	144 0 0
47	Shaikh Abdul	Daharpur ...	0 5 0	1 0 0	30-11-14	10-3-15	8 34 2	22 2 0	15 14 0	6 4 0	75 0 0
48	,, Gadu	Ditto ...	0 2 8	0 20 0	30-11-14	10-3-15	5 11 3	19 3 0	7 7 0	5 12 0	188 0 0
49	Babur Ali Matubbar	Ditto ...	0 2 8	0 20 9	30-11-14	10-3-15	4 32 0	12 0 0	7 7 0	5 7 0	130 8 0
50	Ashwani Kumar Dhan ...	Ditto ...	0 2 0	0 20 0	25-11-14	4-3-15	2 35 0	7 3 0	6 7 0	0 12 0	22 8 0
51	Rahan Khapali	Gangadhurdi	0 5 0	1 0 0	25-11-14	4-3-15	12 18 0	31 2 0	15 14 0	15 4 0	183 0 0
52	Elam Mollik	Ditto ...	0 5 0	1 0 0	25-11-14	4-3-15	10 25 0	26 9 0	15 14 4	10 11 0	128 4 0
53	Shaben Mattan	Khaminar Bag	0 2 0	0 22 0	26-11-14	8-3-15	3 24 0	9 0 0	7 7 0	2 7 0	76 14 0
54	Sabdan Shikdan	Chan Patti ...	0 2 8	0 20 0	26-11-14	8-3-15	4 21 0	11 5 0	7 7 0	3 14 0	93 0 0
55	Shaikh Jaypal	Daharpur ...	0 3 0	0 35 0	26-11-14	8-3-15	6 0 0	20 0 0	11 7 3	9 8 9	187 13 0
56	Derajuddin	Muknampatti	0 5 0	1 6 0	35-11-14	10-3-15	10 0 0	25 0 0	15 14 0	10 14 0	130 8 0
57	Akaban Matubbar	Dahanpur ...	0 1 0	0 10 0	25-11-14	15-3-15	16 0	3 8 0	3 3 6	0 4 6	16 14 0

APPENDIX VII—*contd.*

Faridpur—contd.

Serial No.	Names of cultivators.	Village.	Area of plot.	Quantity of seeds.	Date. Sowing.	Date. Harvesting.	Outturn.	Price of outturn.	Cost of cultivation and price of seeds.	Profit. Per plot.	Profit. Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K. CH.	MD. S. CH.			MD. S. CH.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
58	Sarajuddi	Dahanpur ...	0 10 0	1 25 0	25-11-14	10-3-15	14 25 0	36 9 0	22 10 9	13 14 0	83 5 6
59	Shaikh Abed	Maknampatti	0 1 0	8 10 0	27-11-14	10-3-15	2 6 0	5 6 0	3 11 6	1 10 6	100 2 0
60	Akaban Shikdan	Champatti ...	0 1 0	0 10 9	27-11-14	10-3-15	3 2 0	7 10 0	3 11 0	3 14 6	234 6 0
61	Napal Hazi	Dahanpur ...	0 5 0	0 25 0	30-11-14	8-3-15	5 12 0	13 4 0	9 12 3	3 7 9	69 6 0
62	Shaikh Derajuddi	Ditto ...	0 2 8	0 20 0	30-11-14	8-3-15	4 6 0	10 6 0	6 7 0	3 15 0	84 8 0
63	Kalakadir	Gangadhardi	0 10 0	2 0 0	11-11-14	9-3-15	8 36 0	22 4 0	24 12 0	.....	.....
64	Dailladdi Khondakar	Ditto ...	0 15 0	3 3 0	11-11-14	9-3-15	36 24 0	91 9 0	47 10 0	43 15 0	175 12 0
65	Shaikh Meher	Ditto ...	0 10 0	2 0 0	11-11-14	9-3-15	23 5 0	57 13 0	26 12 0	31 1 0	186 6 0
66	Kadir Khondakar	Ditto ...	0 5 0	1 0 0	16-11-14	10-3-15	7 26 0	19 2 0	14 14 0	4 4 0	66 12 0
67	Shaikh Paban	Ditto ...	0 5 0	1 0 0	16-11-14	10-3-15	6 33 0	17 1 0	14 14 0	2 3 0	25 4 0
68	,, Menu	Ditto ...	0 5 0	1 0 0	3-11-14	2-3-15	9 24 0	24 0 0	14 14 0	9 2 0	109 8 0
69	Hamiu Khan	Ditto ...	0 5 0	1 0 0	3-11-14	2-3-15	8 7 0	20 7 0	14 14 0	5 9 0	65 12 0
70	Haranullah	Ditto ...	0 10 0	2 0 0	10-12-14	12-3-15	16 36 0	42 6 0	26 12 0	15 10 0	93 12 0
71	Shaikh Kalimaddi	Ditto ...	0 12 0	2 25 0	18-11-14	10-3-15	24 6 0	60 6 0	38 8 9	22 1 3	110 11 6
72	,, Kasin	Ditto ...	0 5 0	1 0 0	10-11-14	11-3-15	12 3 0	30 3 0	15 14 0	14 5 0	171 12 0
73	Kanai Mollah	Ditto ...	0 5 0	1 0 0	15-11-14	11-3-15	10 8 0	25 8 0	16 14 0	8 10 0	103 8 0
74	Nasiraddi Matubbar	Ditto ...	0 1 0	0 15 0	15-11-14	11-3-15	3 2 0	7 10 0	6 1 3	1 4 9	77 13 0
75	Shaikh Baser	Ditto ...	0 1 0	0 10 0	15-11-14	12-3-15	2 26 0	6 10 0	3 11 6	2 10 6	159 6 0
76	Anoar Khan Munshi	Ditto ...	0 5 0	1 0 0	25-12-14	15-3-15	10 15 0	25 15 0	17 14 0	8 1 0	96 12 0
77	Jaynal Khan	Ditto ...	0 5 0	1 0 0	25-11-14	15-3-15	8 37 0	22 5 0	15 14 0	6 7 0	77 4 0
78	Shaikh Mabdun	Pachkui ...	0 15 0	2 25 0	20-11-14	8-3-15	22 26 0	56 10 0	35 8 9	21 1 3	84 3 9
79	Kanai Khan	Ditto ...	0 10 0	2 0 0	20-11-14	3-3-15	17 2 0	42 15 0	26 12 0	15 14 0	95 4 0
80	Shaikh Rustam	Gangadhardi	0 5 0	1 0 0	30-11-14	29-2-15	8 36 0	22 4 0	13 14 0	8 6 0	100 8 0
81	,, Faijaddi	Ditto ...	0 2 8	0 20 0	30-11-14	30-2-15	6 10 0	15 10 0	8 7 0	7 3 0	172 8 0
82	Rasir Khan	Ditto ...	0 1 0	0 10 0	4-12-14	15-3-15	2 3 0	5 3 0	3 11 6	1 7 6	91 2 0
83	Ohed Ali	Ditto ...	0 5 0	1 0 0	25-11-14	10-3-15	8 35 0	22 3 0	15 14 0	6 5 0	75 8 0
84	Amanath Khan	Ditto ...	0 5 0	1 0 0	25-11-14	8-3-15	9 31 0	24 7 0	15 14 0	8 9 0	102 12 0
85	Nasiraddi Munshi	Ditto ...	0 5 0	1 0 0	20-11-14	10-3-15	12 4 0	30 4 0	15 14 0	14 6 0	172 8 0
86	Nadu Khan	Ditto ...	0 2 8	0 20 0	20-11-14	9-3-15	5 32 0	14 8 0	8 7 0	6 1 0	145 8 0
87	Mojamer Fakir	Saripabad ...	1 15 0	7 0 0	18-11-14	9-3-15	72 18 0	171 2 0	111 2 0	60 0 0	102 12 0
88	Answaruddin	Ditto ...	0 5 0	1 0 0	6-11-14	10-3-15	9 25 0	24 1 0	15 14 0	8 3 0	97 8 0
89	Shaikh Kanu	Ditto ...	0 10 0	2 0 0	20-11-14	10-3-15	17 22 0	44 2 0	31 12 0	12 6 0	74 4 0
90	,, Dailiaddi	Ditto ...	0 5 0	1 0 0	20-11-14	10-6-15	11 20 0	28 12 0	15 14 0	12 14 0	154 0 0
91	,, Moffijaddi	Ditto ...	0 5 0	1 20 0	20-11-14	10-3-15	14 13 0	36 5 0	21 5 0	15 0 0	180 0 0
92	,, Gafur	Ditto ...	0 10 0	2 0 0	10-11-14	12-3-15	20 7 0	50 7 0	31 12 0	18 11 0	112 2 0
93	,, Aijaddi Choukider ...	Ditto ...	0 5 0	1 0 0	25-11-14	13-3-15	9 0 0	22 8 0	15 14 0	6 10 3	79 8 0
94	,, Baran	Ditto ...	0 10 0	2 0 0	8-11-14	12-3-15	18 25 0	46 9 0	31 12 0	14 13 0	88 14 0
95	,, Anfu	Ditto ...	0 10 0	2 0 0	10-11-14	15-3-15	21 26 0	54 2 0	31 12 0	22 6 0	133 12 0
96	Exfanuddin	Ditto ...	0 5 0	1 0 0	15-11-14	10-3-15	8 33 0	26 1 0	15 14 0	10 3 0	121 8 0
97	Shaikh Hatem	Ditto ...	0 15 0	3 0 0	15-11-14	12-3-15	35 8 0	87 8 0	47 10 0	39 14 0	159 8 0
98	,, Basiraddi	Ditto ...	0 5 0	1 0 0	10-11-14	10-3-15	8 25 0	21 9 0	15 14 0	5 7 0	65 6 0
99	,, Nazem	Ditto ...	0 10 0	2 0 0	15-11-14	9-3-15	12 16 0	31 0 0	29 12 0	1 4 0	7 0 0
100	,, Kader	Ditto ...	0 5 0	1 0 0	10-11-14	10-3-15	6 3 0	15 3 0	13 14 0	1 5 0	15 12 0
101	Amiraddi Mollah	Ditto ...	0 5 0	1 0 0	15-11-14	4-3-15	10 11 0	25 11 0	15 14 0	9 13 0	117 12 0
102	Offajaddi	Ditto ...	0 5 0	1 0 0	20-11-14	10-3-15	5 23 0	14 12 0	15 14 0	.....	.....
103	Adiluddi	Ditto ...	0 5 0	1 0 0	23-11-14	8-3-15	12 18 0	31 2 0	15 14 0	15 2 0	181 8 0
104	Abduschatar Khalifa ...	Hazankanda...	0 5 0	1 0 0	12-11-14	3 3..5	5 32 0	14 8 0	15 14 0	.....	.....
105	Rohiladdi	Ditto ...	0 7 6	1 20 0	12-1-14	1-3-15	8 26 0	21 10 0	15 14 0	6 0 0	51 8 0
106	Moniradin	Ditto ...	0 5 0	1 0 0	12-11-14	15-3-15	10 2 0	25 2 0	15 14 0	9 4 0	111 0 0
107	Menajaddin Hazi	Ditto ...	0 5 0	1 0 0	12-11-14	15-3-15	12 6 0	30 6 0	15 15 0	14 7 0	123 4 0
108	Rohimoddi	Ditto ...	0 7 0	1 20 0	12-11-14	10-3-15	18 0 0	45 0 0	21 6 6	23 9 0	202 3 6
109	Fazlar Rahaman Khondakar ...	Ditto ...	0 2 8	0 20 0	14-11-14	8-3-15	6 10 0	15 10 0	10 7 6	5 2 0	123 12 0
110	Kazi Aptauddin	Hazuakanda	0 2 8	0 20 0	12-11-14	15-3-15	3 15 0	8 7 0	7 15 6	0 7 6	11 4 0
111	Mohon Shaik	Ditto ...	0 7 0	1 20 0	10-11-14	13-3-15	13 25 0	34 1 0	23 6 6	10 10 6	91 5 6
112	Baban Mollik	Fatepatti ...	0 5 0	1 0 0	12-11-14	10-3-15	10 9 0	25 9 0	15 15 0	9 6 0	112 8 0
113	Moniraddi Shaik	Do. ...	0 5 0	1 0 0	12-11-14	10-3-15	12 25 0	31 9 0	15 15 0	15 10 0	187 8 0
114	Shaik Ahadi	Do. ...	0 2 8	0 20 0	12-11-14	10-3-15	3 8 0	8 0 0	7 15 6	0 0 6	0 12 0
115	Jamir Mollah	Do. ...	0 3 0	0 25 0	10-11-14	15-3-15	5 27 0	14 3 0	9 13 9	4 5 3	86 9 0
116	Karim Mollah	Do. ...	1 0 0	4 0 0	12-11-14	15-3-15	43 22 0	108 6 0	53 8 0	54 14 0	164 10 0
117	Arman Ullah	Do. ...	0 5 0	1 0 0	15-11-14	30-3-15	7 18 0	18 10 0	15 15 0	2 11 0	32 4 0
118	Jan Mamud	Do. ...	0 1 0	0 10 0	15-11-14	30-3-15	3 2 8	7 10 0	3 7 9	4 2 3	248 7 0
119	Esan Kazi	Chumurdi ...	0 5 0	1 0 0	10-11-14	8-3-15	13 3 0	32 10 0	15 15 0	16 11 0	200 4 0
120	Aijaddi Munshi	Do. ...	0 5 0	1 0 0	10-11-14	8-3-15	8 2 0	20 2 0	15 15 0	4 3 0	50 4 0
121	Shaik Esub	Do. ...	0 5 0	1 0 0	15-11-14	10-3-15	8 33 0	22 1 0	15 15 0	6 2 0	73 8 0
122	Offajaddi Mollah	Do. ...	0 5 0	1 0 0	10-11-14	9-3-15	9 35 0	24 11 0	15 15 0	8 12 0	105 0 0
123	Kohiladdin Mollah	Do. ...	0 5 0	1 0 0	15-11-11	15-3-15	8 23 0	21 12 0	15 15 0	5 13 0	69 12 0
124	Janai Khan	Do ...	0 5 0	1 0 0	15-11-14	10-3-15	8 23 0	21 15 0	15 15 0	5 13 0	69 12 0
125	Shaik Makbul	Do. ...	0 5 0	1 0 0	15-11-14	10-3-15	11 38 0	29 14 0	15 15 0	13 15 0	167 4 0
126	Aigar Shaik	Parer Char ...	0 5 0	1 0 0	12-11-14	15-3-15	10 26 0	26 10 0	15 15 0	10 10 0	127 8 0
127	Amiraddi Matabbar	Ditto ...	0 8 0	2 22 0	13-11-14	4-3-15	21 33 0	54 10 0	30 14 4	23 11 8	177 15 6
128	Shaik Gagan	Ditto ...	0 5 0	1 0 0	13-11-14	4-3-15	7 25 0	19 1 0	15 15 0	3 2 0	37 8 0
129	,, Baser	Ditto ...	0 5 0	1 0 0	10-11.14	8-3-15	8 33 0	22 1 0	15 15 0	6 2 0	75 0 0
130	Noai Mollah	Ditto ...	0 5 0	1 0 0	9-11-14	20-3-15	7 18 0	18 10 0	15 15 0	2 11 0	32 4 0
131	Emin Khan	Ditto ...	0 5 0	1 0 0	9-11-14	20-3-15	10 9 0	25 5 0	15 15 0	5 10 2	67 8 0
132	Shaik Menajaddi	Khandia ...	0 5 0	1 0 0	8-11-14	10-3-15	5 27 0	14 3 0	15 15 0	.....	.....
133	Anes Shaik	Anapur ...	0 5 0	1 0 0	10-11-14	4-3-15	12 25 0	31 9 0	15 15 0	15 0 0	187 8 0
134	Mesen Talukder	Salidubi ...	0 10 0	1 32 0	10-11-14	10-3-15	12 10 0	30 10 0	29 7 1	0 14 11	5 9 6
135	Anes Mollah	Biswambardi	0 5 0	1 0 0	15-11-14	15-3-15	11 34 0	29 14 0	15 14 0	13 15 0	167 4 0
136	Jabbar Munshi	Saripabad ...	0 2 8	0 20 0	15-11-14	15-3-15	3 15 0	8 7 0	7 15 6	0 7 6	11 10 0
137	Aptenuddin Ahammad	Sarsakandi ...	0 10 0	2 0 0	8-11-14	10-3-15	20 0 0	50 6 0	31 14 0	18 2 0	108 12 0
138	Chabdu Munshi	Baila ...	0 4 0	1 0 0	15-11-14	10-3-15	10 26 0	26 10 0	15 15 0	10 11 0	128 12 0
139	Arabdi Shaik	Do. ...	0 10 0	2 0 0	15-11-14	10-3-15	18 31 0	44 15 0	31 14 0	13 1 0	78 6 0
140	Samiraddi	Do. ...	0 5 0	1 0 0	15 11-14	10-3-15	17 18 0	18 10 0	15 15 0	2 11 0	32 4 0
141	Ebrahim Biswas	Goal Paldi ...	0 5 0	1 16 0	10-11-14	4-3-15	14 8 0	35 0 0	23 3 0	9 12 0	117 0 0
142	Benajaddi Shaik	Ditto ...	0 2 8	0 20 0	10-11-14	4-3-15	3 15 0	8 7 0	7 15 6	0 7 6	11 4 0
143	Dabiruddi Mollah	Ditto ...	0 5 0	1 0 0	10-11-14	10-3-15	11 34 0	29 14 0	15 15 0	13 15 0	167 4 0
144	Chaitange Mistri	Ditto ...	0 5 0	...	10-11-14	10-3-15	17 18 0	18 10 0	15 15 0	2 11 0	32 4 0
145	Payari Mondal	Ditto ...	0 1 0	0 10 0	10-11-14	10-3-15	3 2 0	7 10 0	3 7 0	4 2 3	24 9 0
146	Kali Charan Moudal	Ditto ...	0 1 0	0 1 0	10-11-14	10-3-15	3 0 0	7 8 0	3 7 0	4 0 0	240 6 0
147	Mr. S. M. Bose	Gopalganj ...	1 5 0	4 0 0	15-10-14	23-2-15	46 0 0	138 0 0	65 12 0	72 4 0	173 6 6
148	Moulavi Asid Jaman	Ditto ...	0 5 0	1 15 0	25-10-14	17-2-15	11 0 0	33 0 0	19 0 0	14 0 0	168 0 0
149	,, Janab Ali	Ditto ...	0 1 0	0 10 0	21-10-14	13-2-15	0 16 0	1 3 3	3 4 5	Loss.	Loss.
150	Rajani Kanta Ghosh	Ditto ...	0 2 0	0 25 0	12-10-14	1-3-15	7 38 0	23 11 3	8 5 10½	15 5 4½	460 1 3
151	Jalab Ch. Chakraborty ...	Ditto ...	0 1 0	0 7 0	10-10-14	4-3-15	1 20 0	4 8 0	2 12 6	1 11 6	65 10 0
152	Baikuntha Nath Chanda ...	Ditto ...	0 0 8	0 5 0	20-10-14	4-3-15	1 5 0	3 6 0	1 12 4½	1 9 7½	190 1 0
153	Srish Ch Chakraborty ...	Ditto ...	0 2 0	0 15 0	30-10-14	2-3-15	4 15 0	13 2 0	5 14 1½	7 3 10½	217 4 9
154	Kailash Ch. Karmakar ...	Ditto ...	0 1 0	0 10 0	15-10-14	4-2-15	3 0 0	9 0 0	3 8 9	5 7 3	327 4 9
155	Srikanta Das Gupta	Ditto ...	0 0 8	0 6 0	21-10-14	28-2-15	1 0 0	3 0 0	0 6 0	0 15 6	116 3 0
156	Jamini K. Rakhit	Ditto ...	0 1 0	0 10 0	21-10-14	26-2-15	3 0 0	9 0 0	3 8 9	5 7 3	327 3 0
157	Priya Nath Mitra	Ditto ...	0 1 0	0 10 0	16-10-14	20-2-15	3 0 0	9 0 0	3 8 9	5 7 3	327 3 0
158	Akshay K. Chowdhury	Ditto ...	0 0 8	0 4 0	21-10-14	25-2-15	0 8 0	1 9 6	1 4 6	Loss.	Loss.
159	Moulavi Abdul Kader	Ditto ...	0 5 0	0 37 8	19-11-14	23-2-15	12 10 0	36 12 0	14 6 9	22 5 3	268 5 0

APPENDIX VII—*concld.*

Faridpur—concld.

Serial No.	Names of cultivators.	Village.	Area of land.	Quantity of seeds.	Date. Sowing.	Date. Harvesting.	Outturn.	Price of outturn.	Cost of cultivation and price of seeds.	Profit. Per plot.	Profit. Per acre.
1	2	3	4	5	6	7	8	9	10	11	12
			B. K. CH.	M. S. CH.			MD. S. CH.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
160	Jogendra Ch. Bhattacharjee ...	Gopalganj ...	0 0 8	0 4 0	20-11-14	22-2-15	1 0 0	3 0 0	1 4 6	1 11 6	206 4 0
161	Sashi Kumar Bose	Ditto ...	0 5 0	0 33 0	22-11-14	28-2-15	4 20 0	13 8 0	13 6 0	0 2 0	1 8 0
162	Gopal Ch. Mukharjee	Ditto ...	0 1 8	0 11 0	23-11-14	29-2-15	3 5 0	9 6 0	4 4 8	5 1 4	203 5 4
163	Abdul Gafur	Ditto ...	0 0 8	0 5 0	21-11-14	22-2-15	1 12 0	3 14 6	1 12 4½	2 2 1½	255 15 0
164	Kunjalal Ghose	Ditto ...	0 0 8	0 3 0	13-11-14	21-2-15	0 30 0	2 4 0	1 4 6	0 15 6	232 8 0
165	Basanta Kumar Deb	Ditto ...	0 0 4	0 1 0	13-11-14	27 2-15	0 12 0	0 14 6	0 8 0	0 6 6	97 8 0
166	Purna Chandra Dey	Ditto ...	0 0 4	0 1 0	13-11-14	20-2-15	0 13 0	0 15 6	0 8 0	0 7 6	112 8 0
167	Karnadhar Mullik	Gopinathpur	0 12 0	2 0 0	25-10-14	28-2-15	25 0 0	75 0 0	32 6 0	42 10 0	113 2 0
168	Bishnu Ch. Chowdhury ...	Ditto ...	0 6 0	1 0 0	25-10-14	29-2-15	13 12 0	39 14 6	16 3 0	23 11 3	237 3 0
169	Chandi Charan Biswas ...	Ditto ...	0 1 8	0 15 0	26-10-14	23-2-15	7 5 0	21 6 0	5 5 1½	16 0 10½	640 5 0
170	Fedu Biswas	Ditto ...	0 5 0	1 0 0	26-10-14	2-3-15	16 20 0	49 8 0	15 3 0	34 5 0	411 12 0
171	Kumud Bandhu Biswas ...	Ditto ...	0 6 0	1 0 0	26-10-14	2-3-13	16 20 0	49 8 0	16 3 0	33 5 0	333 2 0
172	Chak Mohan Roy	Girishnagar ...	0 1 0	0 10 0	20-10-14	2-3-15	3 6 0	9 7 3	3 8 9	5 14 6	354 6 0
173	Jaladhar Sarker	Borasi ...	0 2 0	0 15 0	20-10-14	2-3-15	4 10 0	12 12 0	5 13 1½	6 14 10½	267 13 0
174	Kali Charan Mandal	Khatra ...	0 2 8	0 20 6	15-10-14	16-2-15	6 0 0	18 0 0	7 9 6	10 6 6	249 12 0
175	Munshi Kafiuddin	Bedgram ...	0 3 0	0 18 0	20-11-14	17-2-15	5 32 0	17 6 6	7 9 6	9 13 0	196 4 0
176	,, Abul Bari	Patgathi ...	0 1 8	0 10 0	18-10-14	17-2-15	3 5 0	15 6 0	1 0 9	11 5 3	455 2 0
177	Kutiswar Biswas	Char Madhupur	0 7 0	1 22 0	21-11-14	28-2-15	6 30 0	20 4 0	23 0 6	Loss.	Loss.
178	Biswanath Pramanik	Pachuria ...	0 1 8	0 10 0	15-10-14	2-3-15	3 10 0	9 12 0	4 0 9	5 11 3	228 2 0
179	Joydeb Biswas	Padmabilla ...	0 0 8	0 5 0	20-10-14	27-2 15	1 20 0	4 8 0	1 12 4½	2 11 5½	325 15 0
180	Benin Behary Sikdar	Tilchara ...	0 8 0	1 20 0	26-10-14	24-2-15	21 10 0	63 12 0	23 4 6	40 7 6	303 8 3
181	Rati Kanta Biswas	Pachail ...	0 5 0	1 0 0	26-10-14	23-2-15	13 10 0	39 12 0	15 3 0	24 9 0	294 12 0
182	Ahamad Molla	Paranpur ...	0 5 0	1 0 0	26-10-14	22-2-15	13 10 0	39 12 0	15 3 0	24 9 0	294 12 0
183	Munshi Naziruddin	Ghoseapara ...	0 1 0	0 19 0	26-10-14	24-2-15	6 20 0	19 8 0	3 8 9	15 15 3	957 3 0

POTATO CULTIVATION, 1914.

Barisal.

No.	Names of cultivators.	Village.	Area of land in acres.	Quantity of seed.	Outturn.	Price of outturn.	Price of seeds.	Profit. Per plot.	Profit. Per acre.
1	2	3	4	5	6	7	8	9	10
				MD. S. CH.	MD. S. CH.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
1	Abdul Haque	Kalia ...	·16	0 19 0	2 10 0	5 10 0	4 12 0	0 14 0	5 7 6
2	Abdul Haque Panchayet ...	Do. ...	·16	0 19 0	2 20 0	6 4 0	4 12 0	1 8 0	9 6 0
3	Gafarad Sikdar	Do. ...	·08	0 10 0	1 20 0	3 12 0	2 8 0	1 4 0	15 10 0
4	Mahammed	Do. ...	·08	0 10 0	1 18 0	3 10 0	2 8 0	1 2 0	14 1 0
5	Kamaluddy	Do. ...	·16	0 19 0	2 20 0	6 4 0	4 12 0	1 8 0	9 6 0
6	Phaju	Do. ...	·08	0 10 0	1 20 0	3 12 0	2 8 0	1 4 0	15 10 0
7	Karimali	Do. ...	·01	0 5 0	0 25 0	1 9 0	1 4 0	0 5 0	31 4 0
8	Munshurali	Do. ...	·01	0 5 0	0 33 0	2 3 0	1 4 0	0 15 0	93 12 0
9	Imanaddi	Do. ...	·01	0 5 0	0 27 0	1 11 0	1 4 0	0 7 0	43 12 0
10	Achimaddi	Daspara ...	·08	0 7 0	0 20 0	3 12 0	1 12 0	2 0 0	25 0 0
11	Ohadali Peon	Baufal ...	·24	0 30 0	0 35 0	9 11 0	7 8 0	2 3 0	9 1 9
12	Deb Narayan Roy	Royer Kati	·03	0 10 0	2 0 0	5 0 0	2 8 0	2 8 0	5 4 0
13	Mahamed Abdul Gani ...	Telikhali ...	·13	0 30 0	3 30 0	9 6 0	7 8 0	1 14 0	6 9 0
14	Tanu Howladur	Maderkaty	·35	2 0 0	10 0 0	25 0 0	20 0 0	5 0 0	4 9 0
15	Elemaddi Howladar ...	Ditto ...	·33	1 0 0	4 10 0	10 0 0	10 0 0	0 10 0	14 4 0
16	Mr. Brown	Alkanda ...	·43	1 0 0	7 0 0	17 8 0	10 0 0	7 8 0	22 11 8
17	Rai M. N. Sen Bahadur ...	Barisal ...	·37	1 0 0	10 30 0	26 14 0	10 0 0	16 14 0	45 9 9
18	Hamijaddi	Charadi ...	·16	0 20 0	2 20 0	6 4 0	5 0 0	1 4 0	7 13 0
19	Thakurali	Ditto ...	·33	1 0 0	6 0 0	15 0 0	10 0 0	5 0 0	15 2 3
20	Abhoy Chandra Ghose ...	Ganapara ...	·26	0 25 0	7 0 0	17 8 0	6 4 0	11 4 0	43 4 4
21	Ismail Chaukidar	Ichakati ...	16	0 15 0	8 0 0	20 0 0	3 12 0	16 4 0	101 9 0
22	Nilkanta Deo.i	Madhabpasa	·33	1 0 0	9 0 0	22 8 0	10 0 0	12 8 0	14 1 0
23	Rahimuddi Howladar ...	Kristopur ...	·33	1 0 0	2 12 0	5 12 0	10 0 0	.....	.....
24	Kailash Chandra Bose ...	Ramchandra-pur.	·06	0 4 0	0 20 0	1 4 0	1 0 0	0 4 0	4 2 0
25	Jainaddi	Barisal ...	·08	0 6 0	1 26 0	4 2 0	1 8 0	2 10 0	32 13 0
26	Kali Prasanna Banerjee ...	Bhola ...	·15	0 22 0	8 3 0	20 3 0	5 8 0	14 11 0	97 14 9
27	Lalit Mohon Mukharjee ...	Paranganj ...	·07	0 10 0	3 0 0	7 8 0	2 8 0	5 0 0	71 6 9
28	Athoy Kumar Roy	Muharjung	·18	0 20 0	5 0 0	12 8 0	5 0 0	7 8 0	41 10 9
29	Mijan Pandit	Gangapur ...	·04	0 7 0	1 32 0	4 8 0	1 12 0	2 12 0	68 12 0
30	Satish Chandra Guha ...	Barhanaddi	·37	0 20 0	10 0 0	25 0 0	5 0 0	20 0 0	54 1 0
31	Abdul Gani	Malti ...	·37	1 20 0	15 0 0	37 8 0	15 0 0	22 8 0	60 13 0
32	Abdul Karim	Do. ...	·37	1 0 0	10 20 0	26 4 0	10 0 0	16 4 0	45 0 0
33	Joynal Munshi	Do. ...	·37	1 0 0	14 20 0	36 4 0	10 0 0	26 4 0	70 15 3
34	Khosal	Do. ...	·18	0 20 0	4 0 0	10 0 0	5 0 0	5 0 0	27 12 6
35	Kaminaddi	Do. ...	·37	1 0 0	10 0 0	25 0 0	10 0 0	15 0 0	40 8 9
36	Makbul Ahamed	Do. ...	·07	0 10 0	1 10 0	3 2 0	2 8 0	0 10 0	18 14 6

APPENDIX VIII.

DACCA.

List of cowdung conservation pits.

Number.	Names of cultivators.	Village.	Number of pits.
1	2	3	4
1	Kamini Kumar Mullick ...	Brahmandi ...	1
2	Askar Ali	Bowadi ...	1
3	Jagat Chandra Day	Shibnandi ...	1
4	Abdul Rahim	Gagatia ...	1
5	Ismail	Huglakandi ...	1
6	Maniruddin	Daulatkandi ...	1
7	Abdul Gafur	Ditto ...	1
8	Shaharali	Asrabpur ...	1
9	Gadadhar Mistry	Pagla ...	1
10	Ramidhan Mistry	Kamalpur ...	1
11	Rajendra Kumar Dutta ...	Sheharchar ...	1
12	Ramchandra Mistry	Godhail ..	1
13	Pandav Biswas	Do. ...	1
14	Radha Charan Gope	Fatulla ...	1
15	Bochai Sirkar	Tegharia ...	1
16	Lakshmi Mistry	Ditto ...	1
17	Chandranath Sirkar ...	Ditto ...	1
18	Purna Mandal	Akrabari ...	1
19	Ramsundar Bepari	Arakul ...	1
20	Debendra Nath Sil	Do. ...	1
21	Monmohan Das	Pubdi ...	1
22	Haladhar Mistry	Nalban ...	1
23	Asananda Mandal	Basbari ...	1
24	Haladhar Mandal	Ditto ...	1
25	Ramananda Mandal	Ditto ...	1
26	Shaikh Adam	Katasur ...	1
27	Shaikh Kerali	Nayagaon ...	1
28	Sagir Mahmud	Markoom ...	1
29	Ramsankar Sirkar	Duttapara ...	1
30	Panchkowori Mandal	Katara ...	1
31	Sekandar Hazi	Bagbari ...	1
32	Kristo Kumar Madbar ...	Sudharchar ...	1
33	Monmohan Barui	Imamerchar ...	1
34	Dengar Khan	Kusumpur ...	1
35	Badshahi Haldar	Ditto ...	1
36	Hari Mandal	Sridharkhola ...	1
37	Panchananda Mandal	Ditto ...	1
38	Gosaidas Mandal	Ditto ...	1
39	Sona Mollah	Rasakati ...	1
40	Rupnuddi Sheikh	Ditto ...	1
41	Sheikh Meherali	Baligaon ...	1
42	Bakshi Mahamad	Ditto ...	1
43	Sanatan Mandal	Angaira ...	1
44	Nanda Kumar Mandal ...	Ditto ...	1
45	Prohlad Mandal	Kanainagar ...	1
46	Lalbehari Kaviraj	Chakighata ...	1
47	Shibnath Bepari	Ditto ...	1
48	Abdul Rashid	Ramnagar ...	1
49	Sheikh Kadir	Golachipa ...	1
50	Salim Bepari	Ramnagar ...	1

APPENDIX VIII—*contd.*

MYMENSINGH.

List of cowdung conservation pits, 1914.

Number.	Names of cultivators.	Village.	Number of pits.
1	2	3	4
1	Shaikh Jabber	Golgonda ...	1
2	Setu Mandal	Do. ...	1
3	Girish Chandra Dev	Khagdahar ...	1
4	Jabu Sircar	Kalyanpur ...	1
5	Shaikh Sharip	Khagdahar ...	1
6	Rahim Chopdar	Dariapur ...	1
7	Santi Chandra Mazumdar ...	Thakurakona ...	1
8	Abdul Mazid	Barshikura ...	1
9	Harish Chandra Biswas ...	Ramshid ...	1
10	Nibaran Chandra Mazumdar ...	Thakurakona ...	1
11	Nanda Kishore Nath	Ditto ...	1
12	Kamini Kumar Das	Shalpapaguli ...	1
13	Hamiluddin Khan	Katlee ...	1
14	Hafizuddin Khan	Do. ...	1
15	Shaikh Amir	Deola ...	1
16	Krishna Sundar Sircar ...	Guptergaon ...	1
17	Bhairab Prosad Singha ...	Gadaria ...	1
18	Shubal Shaikh	Chakdeola ..	1
19	Sabi Munshi	Mirzapur ...	1
20	Meharulla Khan	Maijbari ...	1
21	Samiruddin Munshi	Do. ...	1
22	Nabu Sircar	Alipur ...	1
23	Dwarika Nath Chanda ...	Do. ...	1
24	Himnat Bepari	Bairan ...	1
25	Badaruddin Fakir	Do. ...	1
26	Intazuddin Khandakar ...	Dampara ...	1
27	Iasin Sircar	Ashuria ...	1
28	Kabil Munshi	Do. ...	1
29	Jinnatali Ahamed	Akashi ...	1
30	Amiruddin Ahamed	Tikri ...	1
31	Akali Duftry	Rajerbag ...	1
32	Abdul Jabber Kazi	Malaori ...	1
33	Abhoy Chandra Sukladas ...	Charsolakia ...	1
34	Niamat Munshi	Ghaital ...	1
35	Mamud Charu	Do. ...	1
36	Sayedali Shaikh	Do. ...	1
37	Ablash Shaikh	Do. ...	1
38	Jamir Shaikh	Do. ...	1
39	Ibu Mandal	Sreedharkhila ...	1
40	Ibrahim Shaikh	Ditto ...	1
41	Asanulla Shaikh	Charsolakia ...	1
42	Nazir Bhuiya	Solakia ...	1
43	Sonadhar Shaikh	Rashidabad ...	1
44	Sharui Mandal	Akashi ...	1
45	Goba Mandal	Do. ...	1
46	Rupa Mandal	Do. ...	1
47	Taib Shaikh	Baira ...	1
48	Tazimuddin Ahamed	Do. ...	1
49	Jair Mandal	Do. ...	1
50	Akbarali Shaikh	Do. ...	1
51	Munshi Manitulla	Malipara ...	1
52	Manu Mandal	Baira ...	1
53	Shebatulla Bepari	Guptergaon ...	1
54	Dhutraj Sircar	Ditto ...	1
55	Ishan Chandra Sil	Mokamia ...	1
56	Shaikh Jarip	Guptergaon ...	1

APPENDIX VIII—*contd.*

MYMENSINGH—*concld.*

List of cowdung conservation pits, 1914.

Number.	Names of cultivators.	Village.	Number of pits.
1	2	3	4
57	Shaikh Rahimuddin	Chotashunai ...	1
58	Shaikh Mamin	Ditto ...	1
59	Kashi Nath Sircar	Guptergaon ...	1
60	Abbasali Fakir	Chakdeola ...	1
61	Rangu Mandal	Chaksunai ...	1
62	Chandra Kishore Sircar ...	Dariamamudpur ...	1
63	Shaikh Taleb	Payari ...	1
64	Shaikh Dinu	Do. ...	1
65	Shaikh Samir	Do. ...	1
66	Shaikh Izat Sircar	Do. ...	1
67	Rahimuddin Sircar	Narikeltola ...	1
68	Mafizuddin Ahamed	Godaria ...	1
69	Shaikh Adamali	Dewla ...	1
70	Mojafar Peda	Do. ...	1
71	Jabu Sircar	Kalyanpur ...	1
72	Eadali Shaikh	Baigunbari ...	1
73	Forman-Bepari	Ditto ...	1
74	Iasin Fakir	Bairan ...	1
75	Kangu Bepari	Charalgi ...	1
76	Ismail Shaikh	Do. ...	1
77	Mamudali Shaikh	Do. ...	1
78	Alim Bepari	Do. ...	1
79	Kalim Sircar	Do. ...	1
80	Barkat Munshi	Do. ...	1
81	Nasaruddin Khan	Do. ...	1
82	Sadir Shaikh	Dumree ...	1
83	Abdul Aziz	Jogadal ...	1
84	Mamudali Shaikh	Ghaital ...	1
85	Shaikh Najoo	Jagadal ...	1
86	Nanda Kumar Sen	Kumree ...	1
87	Jaharali Munshi	Nagra ...	1
88	Santi Mazumdar	Thakurakona ...	1
89	Nripendra Mazumdar	Ditto ...	1
90	Bhusan Namasudra	Ditto ...	1
91	Jogendra Chandra Dey ...	Kunree ...	1
92	Maulvi Ahamed	Shyamganj ...	1
93	Mohiuddin	Medini ...	1
94	Surendra Chandra Chowdhury ...	Rameswarpur ...	1
95	Jogendra Chowdhury	Shibnagar ...	1

APPENDIX VIII—*contd.*

Serial No.	Names of cultivators.	Address.	Number of pits.
1	2	3	4
1	Moulavi Muhammad Ekram ...	Post office Faridpur, village Kamalpur.	1
2	Sefatulla Hazi	Post office Faridpur, village Char Kamalpur.	1
3	Sefatulla Hazi	Ditto ...	1
4	Aijuddi Shek	Ditto ...	1
5	Maulavi Abdul Gafur Khondokar	Kaijuri, Kafura ...	1
6	Rahamatulla Khan	Raghunandanpur, Faridpur.	1
7	Eashhin Mondal	Ditto ...	1
8	Bhuban Chandra Das	Char Sultanpur, Haziganj.	1
9	Gadai Bepari	Joair Kafura ...	1
10	Ghena Matabbar	Ditto ...	1
11	Abdul Gafur	Nurpur, Bhanga ...	1
12	Aijuddi	Ditto ...	1
13	Naziruddi Molla	Ditto ...	1
14	Sheik Gani	Charkanda, Bhanga	1
15	Gayejuddi Bepari	Ghaura, Bhanga ...	1
16	Aijuddi Shikdar	Ditto ...	1
17	Ofajaddi	Gangadhardi, Bhanga.	1
18	Omedali	Ghaura, Bhanga ...	1
19	Sheik Gayejaddi	Ditto ...	1
20	Nasir	Ditto ...	1
21	Paresulla Sheikh I	Benodepur, Rajbari	2
22	Paresulla Sheikh II	Ditto ...	1
23	Paresalla Bepari	Ditto ...	2
24	Jatai Sheikh	Ditto ...	1
25	Derajuddi Sheikh	Ditto ...	1
26	Manik Mandal	Ditto ...	1
27	Salimuddin Sardar	Dadshi, Rajbari ...	1
28	Sadaruddin Mollah	Char-Jhinri, Habaspur.	1
29	Kamala Kanto Kapali	Manikpur village, Chandra Deghatia.	1
30	Madan Kapali	Ditto ...	1
31	Ram Charan Kapali	Ditto ...	1
32	Krishadhan Kapali	Ditto ...	1
33	Ram Das Kapali	Ditto ...	1
34	Prasanna Kapali	Ditto ..	1
35	Lakhi Kanto Kapali	Ditto ...	1
36	Chak Mohan Ray	Girisnagar, Chandra Dighatia P.O.	1
37	Kuteswar Biswas	Charmadupur village.	1
38	Panchanan Biswas	Char Busuria, Gopalgunge.	1

APPENDIX VIII—*concld.*

Number.	Names of cultivators.	Village.	Area of land.
1	2	3	4
	BAKARGANJ.		
1	Mr. Carry	Sagardi ...	1
2	Abdul Gani	Bagora ...	1
3	Ismail Chowkidar	Ichapur ...	1
4	Nilkanta Deori	Madhabpasa ...	1
5	Syed Muhammad Asraf ...	Karapur ...	1
6	Kurman Chowkidar	Ditto ...	1
7	Maher Ali	Sariktala ...	1
8	Gahur Ali	Ditto ...	1
9	Nawab Ali	Ditto ...	1
10	Abdul Haque Panchayet ...	Kalaia ...	1
11	Osman Ali	Charnoabad ...	1
12	Abdul Haque	Ditto ...	1
13	Dudmia	Angi ...	1

APPENDIX IX.

DACCA.

Green-manuring with Dhaincha for paddy.

			B. K. CH.
1	Mangal Chaukidar	Dinnadar ...	0 10 0
2	Shaikh Jhapa	Agargaon ...	0 4 0
3	Shaikh Kalim	Companibag ...	0 10 0
	MYMENSINGH.		
	*Green-manuring of jute with sunn hemp.**		
1	Samir Munshi	Maizbari ...	...
2	Bhola Nath Mala	Char Algi* ...	..
3	Gopi Mohan Mala	Ditto ...	...
4	Jahabox Shaikh	Ditto ...	...
5	Charu Shaikh	Ditto ...	...
	FARIDPUR.		
1	Naimaddin Biswas	Chartepurakandi ...	0 10 0
2	Sahiruddin Biswas	Ditto ...	0 10 0
3	Mahammad Ekram	Kamalapur ...	0 10 0
4	Sefatulla Hazi	Charkampur ...	0 5 0
5	Abdul Wahed Jotdar	Sovarampur ...	0 5 0
	BAKARGANJ.		
1	Nowbali Howladar	Sariktala ...	1 0 0†
2	Ismail Chaukidar	Ichakali ...	1 0 0
3	Babu Abhoy Kumar Ghose ...	Ganapara ...	1 0 0
4	Dwarika Nath Das	Silpara ...	1 0 0

* Result will be reported in next year.
† Pirojpur subdivision.

R. DAS GUPTA,

Supdt. of Agriculture, Dacca Division.

No. 140, dated Rajshahi, the 28th June 1915.

From—THE SUPERINTENDENT OF AGRICULTURE, Rajshahi Division,
To—The Director of Agriculture, Bengal (through the 2nd Deputy Director of Agriculture, Bengal).

I HAVE the honour to submit herewith the annual reports for the year 1914-15.

ANNUAL REPORT OF THE DEMONSTRATION WORK OF THE SUPERINTENDENT OF AGRICULTURE, RAJSHAHI DIVISION,

1914-15.

During the year under review I was assisted by a staff of two district officers and thirteen demonstrators. Babu Bhabatosh Datta, Divisional Inspector of Agriculture, was in charge of Pabna and Babu Binod Lal Mukherjee, District Inspector, in charge of Malda.

There were three demonstrators in the Rajshahi district, three in Pabna, three in Malda, two in Bogra, one in Jalpaiguri and one in Dinajpur.

The main items of demonstration were: (1) effect of bonemeal on winter paddy; (2) the superiority of the Darjeeling variety of potatoes to the local; (3) green manuring of potatoes with cowpea, *aman* paddy with *dhaincha* and jute with sun hemp; (4) conservation of cattle dung in covered pits; (5) residual demonstration in bonemeal; (6) introduction of the better classes of sugarcane in some of the districts; (7) seed selection in the field and (8) superiority of some of the modern implements, especially Meston plough, Planet Junior handhoe and Done.

Bonemeal demonstration.—There were altogether 115 plots which received bonemeal for the first time. Of these 37 were sown with *aus* paddy and the rest with *aman*.

The distribution of plots was as follows :—

District.		Aus.	Aman.
Rajshahi	...	18	10
Bogra	...	2	36
Dinajpur	...	9	5
Pabna	...	5	16
Malda	...	2	5
Jalpaiguri	...	1	6
Total	...	37	78

The manure gives a highly encouraging result in the district of Bogra and in part of Dinajpur (hillside) and in Northern Rajshahi. Its effect is also very encouraging in the district of Jalpaiguri. In the district of Rajshahi the manure was applied in the mulberry fields now under jute or *aus* paddy, and the result was quite good in the second and third year after application, and the effect of the manure extends even to the fourth year after its application.

The varieties of paddy with which bonemeal had been tried were Elai, Mugi, Guje, Kumragair, Kataribhog and Tulapanji.

Potatoes.—I had 240 plots of potatoes last year. It has been definitely proved that the Darjeeling variety of potato is the best for the cultivators. In the district of Bogra the Darjeeling potatoes have been very successful, and there is a great demand for the seeds. From the experiences of the past two years it has been found that the Darjeeling variety grows very well in the Pabna district and especially on the Bharenga side.

Distribution of plots.

Rajshahi	...	...	68
Bharenga	...	...	97
Bogra	...	...	76
Malda	...	...	6
Sara	...	...	9
Jaypurhat	...	...	7
Dinajpur	...	...	33
Jalpaiguri	...	...	11
Nator	...	...	6
			313

The approximate yield of potatoes is 75—100 maunds per bigha in Bogra, 50—65 in Rajshahi, 48—69 in Nator, 60—75 in Bharenga, 45—65 in Dinajpur and 60—70 in Jalpaiguri (all maunds per bigha). The manure used is generally cowdung supplemented by some oilcake. In 62 of the above plots green manuring with cowpea was taken recourse to. Of the remaining plots, some were either sown with *aus paddy* before the potatoes and some with jute. It is needless to say that the plots sown with cowpea first and potatoes after gave a higher yield.

Green manuring.—Cowpea with potatoes gave a very encouraging result. There were 36 plots green manured with *dhaincha* and then sown with *aman* paddy. Of these 29 gave very good results. There were three plots green manured with sunhemp and then sown with jute. Owing to the abnormal circumstances last year the results could not be obtained satisfactorily, but one of them at least leaves no doubt about its beneficial effects.

Manure pits.—The number of pits has been reduced during the year 1914, the total number being 71. In a few pits a new feature was introduced, namely, the addition of a small quantity of bonemeal to each day's collection, the idea being that the bonemeal would decompose along with the dung. This was done by the owners themselves, there being no extra labour for us.

Sugarcane.—Owing to the shortage of cuttings very few plots were under this crop. The Dacca Gandari, Shyamsara and Vendamukhi were tried. The Vendamukhi (called Velnamukhi in Rajshahi and adjoining districts) variety seems to be superior to the other two, and I generally recommended this variety. Cuttings of this variety are easily available in the division and that is another advantage. The Vendamukhi variety can stand drought better than the other two and also gives a superior quality and yield of *gur*. The Tanna canes are in great demand owing to its hardness which resists the attacks of wild boars.

Seed selection.—Last year was a disastrous year for the jute crop and hence not many cultivators could be induced to select the seeds specially. There were a lot of uncut plots, and the cultivators generally depended on them for seed. This year about 2 maunds of Mr. Finlow's jute is being tried side by side with the best cultivators' varieties, and in a few cases with our selected seeds.

Onions.—During the year 1914-15, I introduced the cultivation of *deshi* and Patna onions among many cultivators. The crop seems to be an extremely profitable one, in some cases even more profitable than potatoes. It is a very easily cultivated crop and the seeds are available anywhere. The *deshi* variety is more profitable than the Patna. In a few cases the yield has been from 80—100 maunds per bigha.

Horticulture.—During this year some attention was given to this branch of our work. In some villages near Rajshahi seed-beds were opened and the process of raising seedling was shown to the cultivators. Cabbages, cauliflowers, turnips, carrots, etc., were sown by some cultivators and the profit made by them is sure to attract many more in future.

Cattle food.—The question of fodder crops received more attention this year than in previous years. There were altogether 43 plots of land sown under my supervision with various sorts of fodder crops. There were 7 plots of *kheshari*, 16 of cowpea, 9 of *juar*, 5 of *gahama*, 4 of *matikalai* and 2 of Patna carrots. The two fields of carrots gave a yield of about 125 maunds of green food per bigha on an average. Guineagrass, Reana and *khari* cane are being tested.

Implements.—The Planet Junior Hand Hoe, the Meston Plough and the Done have been introduced in many places. Demonstrations on the uses of these implements were conducted throughout the division. Demonstrations on the use of the Knapsack Sprayer were also arranged.

N. GUPTA,
Supdt. of Agriculture, Rajshahi Division.

RAJSHAHI,
The 28th June 1915.

BONEMEAL (PADDY).

District and name of cultivator.	Area of land each both manured and unmanured.	Yield.		Difference.	Difference per bigha.	Price of difference at Rs. 2-8 per maund.
		Unmanured.	Manured.			
RAJSHAHI.	B. K.	Mds. Sr.	Mds. Sr.	Mds. Sr.	Mds. Sr. Ch.	Rs. A. P.
Purna Chandra Sarkar.	1 0	9 12	11 3	1 31	1 31 0	4 7 0
Bhubon Mohan Maitra.	0 15	3 6	4 10	1 4	1 8 0	3 0 0
Sheru Sardar ...	1 5	7 2	8 12	1 10	1 0 0	2 8 0
Pachu Ram Sarkar...	1 0	6 10	6 29	0 19	0 19 0	1 3 0
Pariqulla ...	1 3	7 2	8 30	1 28	1 19 0	3 11 0
Hamid Mondal ...	0 16	4 0	5 0	1 0	1 10 0	3 2 0
Meghu Sarkar ...	0 10	3 13	4 9	0 36	1 32 0	4 8 0
Khudi Mirdha ...	1 0	8 5	9 10	1 5	1 5 0	2 13 0
Kinu Mirdha ...	1 2	7 10	7 38	0 28	0 25 0	1 9 0
Esmail Mondal ...	0 18	7 3	7 24	0 21	0 23 5	1 7 3
Ebrahim Mondal ...	3 10	26 5	32 0	5 35	1 27 0	4 3 0
Amanat Sheikh ...	1 15	5 12	7 5	1 33	1 1 0	2 9 6
Dobir Mia ...	0 12	1 2	5 5	1 3	1 32 0	4 8 0
Karamali Jotedar ...	1 0	6 5	7 13	1 8	1 8 0	3 0 0
Naba Pramanick ...	1 0	3 13	5 22	2 9	2 9 0	5 9 0
BOGRA.						
Pachkari Sahi ...	3 6	...	32 4	...	...	...
	2 10	...	16 22	...	...	...
	1 0	7 5	9 5	2 0	2 0 0	5 0 0
	0 12	4 0	4 36	0 36	1 20 0	3 12 0
	0 15	3 15	3 22	0 7	0 9 0	0 9 0
	2 5	...	16 1	...	...	...
	2 0	19 6	22 15	3 9	1 24 8	4 0 6
	1 0	7 5	9 10	2 5	2 5 0	5 5 0
KHANJANPUR. (BOGRA).						
Ward's Estates ...	0 13	4 10	6 3	1 33	2 9 4	5 9 3
	1 0	7 15	9 5	1 30	1 30 0	4 6 0
	1 5	6 10	6 30	0 20	0 16 0	1 0 0
	0 10	3 15	4 13	0 38	0 19 0	1 3 0
	0 6	2 10	3 15	1 5	3 30 0	9 6 0
Pitambar Raha ...	1 0	7 5	8 10	1 5	1 5 0	2 13 0
Joy Krishna Pal ...	1 5	6 10	8 15	2 5	1 28 0	4 4 0
Erfanali Mia ...	0 10	3 15	4 20	1 5	0 22 8	1 6 6
Jabbar Seikh ...	0 10	4 0	6 0	2 0	1 0 0	2 8 0
Torabali ...	1 5	13 0	14 10	1 10	1 0 0	2 8 0
JALPAIGURI.						
	1 0	No Check Plot.	10 13	...	...	...
	0 15		9 3	...	...	...
	3 0		32 3	...	...	...
	2 1		14 8	...	...	...
	0 12		4 0	...	...	...
	1 5		7 25	...	...	...

District and name of cultivator.	Area of land each both manured and unmanured.	Yield.		Difference.	Difference per bigha.	Price of difference at Rs. 2-8 per maund.
		Unmanured.	Manured.			
PABNA.	B. K.	Mds. Sr.	Mds. Sr.	Mds. Sr.	Mds. Sr. Ch.	Rs. A. P.
Tangbari ...	1 0	8 5	9 10	1 5	1 5 0	2 13 0
Baktarpur ...	1 0	7 30	9 0	1 10	1 10 0	3 2 0
Sara	0 12	4 5	6 0	1 35	3 5 0	7 13 0
	1 0	9 0	10 30	1 30	1 30 0	4 6 0
	0 15	6 3	7 12	1 9	1 25 5	4 1 3
DINAJPUR.						
Golam Ali ...	2 0	15 10	18 30	3 20	1 30 0	4 6 0
Barkatulla Sekh ...	1 10	13 0	15 2	2 2	1 14 9	3 6 6
Hem Chandra Sil ...	2 10	19 10	23 0	3 30	1 20 0	3 12 0
Dhone Krishna Bairagi.	0 15	4 30	6 9	1 19	1 38 11	4 14 9

BONEMEAL WITH JUTE.

No.	Name of village.	Outturn per bigha.	Value of outturn per bigha.	Expenditure per bigha.	Profit.	Net profit in manured.	
		Mds. Sr.	Rs.	Rs. A.	Rs. A.	Rs.	
1	Tangbari..	7 20	30	17 8	12 8	4	Manured.
		5 30	23	14 8	8 8		Unmanured.
		7 0	28	18 8	9 8	3 Profit	Manured.
		5 20	22	15 8	6 8		Unmanured.
2	Baktarpur	7 20	30	14 0	16 0	3	Manured.
		6 0	24	11 0	13 0		Unmanured.

POTATOES (DARJEELING).

RAJSHAHI.	Outturn per bigha.	Value of outturn.	Approximate cost.	Net profit.
	Mds. Sr.	Rs. a.	Rs. a.	Rs. a.
Paba	43 0	86 0	42 10	43 6
	59 10	18 8	41 0	77 8
	51 6	102 5	56 8	46 13
Nahata	61 0	122 0	51 12	70 4
	46 10	92 8	56 0	36 8
Baya	61 0	122 0	47 0	75 0
	39 6	78 5	51 0	27 5
Tanore	45 3	90 2	50 0	40 2
	53 0	106 0	43 14	63 14
Godagari	38 10	76 8	49 0	27 8
	43 0	86 0	36 10	49 6
Shahapur	71 0	142 0	38 0	104 0
	55 16	110 13	49 8	70 5
Puthia	37 10	74 8	60 0	14 8
Nator	74 12	148 10	36 0	112 10
	49 10	98 8	45 0	53 8
	43 0	86 0	57 0	29 0
	54 10	108 8	51 10	56 14
	68 13	136 10	49 12	96 14

POTATOES (DARJEELING).

PABNA.	No.	Outturn per bigha.	Value of outturn.	Expenditure per bigha.	Net profit.
		Mds. Sr. Ch.	Rs. a.	Mds. Sr.	Rs. a. p.
Majbari ...	1	58 0 0	145 13	42 0	103 0 0
	2	45 20 0	111 12	39 8	74 4 0
Kapashdanga ..	3	35 0 0	87 8	34 0	53 8 0
Mayabari ...	4	40 0 0	100 0	42 0	58 0 0
	5	53 0 0	132 8	52 8	80 0 0
Chandipur	6	82 16 0	106 0	35 0	71 0 0
Maidanagar ...	7	68 26 0	171 0	52 0	119 0 0
Mirpur ...	8	41 17 8	103 9	39 1	64 8 6
	9	45 20 0	113 12	45 0	68 12 0
	10	50 0 0	124 0	40 0	84 0 0
Dighalkandi	11	57 8 0	143 0	44 0	99 0 0
	12	61 0 0	152 8	52 8	100 0 0
	13	52 20 0	129 4	57 8	61 12 0
Baktiarpur ...	14	42 0 0	105 0	33 0	72 0 0
	15	52 16 0	131 12	48 0	83 0 0
	16	69 0 0	138 0	52 0	86 0 0
Bagchar	17	73 0 0	156 0	43 0	113 0 0
Bharenga ...	18	68 10 0	137 0	41 8	95 8 0
	19	71 0 0	142 0	39 0	103 0 0

POTATOES (DARJEELING).

Bogra.	No.	Outturn per bigha.	Value of outturn at Rs. 2-4 per maund.	Expenditure including price of seeds.	Net profit.
		Md. Sr. Ch.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Dhara	20	93 0 0	209 4 0	73 0 0	136 4 0
	21	76 3 0	171 1 0	67 0 0	103 15 0
	22	83 0 0	186 12 0	50 0 0	136 12 0
	23	85 10 0	191 13 0	52 10 0	139 3 0
	24	61 0 0	137 4 0	47 3 0	90 1 0
	25	49 0 0	110 4 0	59 0 0	51 4 0
	26	71 0 0	159 12 0	75 0 0	84 12 0
	27	75 0 0	168 12 0	61 0 0	107 12 0
	28	69 0 0	155 4 0	72 0 0	83 4 0
	29	83 10 0	187 5 0	61 0 0	125 11 0
	30	91 0 0	204 8 0	78 0 0	126 8 0
	31	87 10 0	195 12 0	81 0 0	114 12 0
	32	64 0 0	144 0 0	39 10 0	104 6 0
	33	49 0 0	110 4 0	48 0 0	62 4 0
Khanjanpur ...	34	56 0 0	126 0 0	42 0 0	84 0 0
	35	62 0 0	139 8 0	40 0 0	99 8 0
	36	61 20 0	138 6 0	41 10 0	96 12 0
	37	79 0 0	177 12 0	62 0 0	115 12 0
Hili	38	82 10 0	185 1 0	65 0 0	120 1 0
	39	63 0 0	141 12 0	73 10 0	68 2 0

SUGARCANE.

VENDAMUKHI *vs.* KHARI *vs.* SHAMSARA.

District.	Outturn of *gur* per bigha (Khari).	Outturn of *gur* per bigha (Vendamukhi).	Outturn of *gur* per bigha (Shamsara).	Outturn of *gur* per bigha (Gandari).
	Mds. sr.	Mds. sr.	Mds. sr.	Mds. sr.
Rajshahi ... 1 ...	18 10	...	...	24 20
2 ...	14 0	24 6	...	...
3 ...	22 0	30 10	23 16	...
4 ...	20 10	27 0	...	...
5 ...	21 0	...	26 0	...
Khanjanpur ... 6 ...	13 10	32 0	...	25 20
7 ...	17 10	...	21 0	...
8 ...	20 0	26 13	23 10	25 0
Dinajpur ... 9 ...	19 0	27 30	...	..
10 ...	13 0	31 0	...	...

GREEN MANURING—(AMAN PADDY WITH DHAINCHA).

	Area both manured and unmanured.	Outturn unmanured.	Outturn manured.	Difference.	Difference per bigha.	Value of difference at Rs. 2-8 per maund.
	B. K.	MDS. SR.	MDS. SR.	MDS. SR.	MDS. SR. CH.	RS. A.
Rajshahi ...	0 15	6 10	7 5	0 35	1 8 0	3 0
	1 0	8 0	9 10	1 10	1 10 0	3 2
	1 0	5 12	6 0	1 12	1 12 0	3 4
	1 0	9 10	9 26	0 16	0 16 0	1 0
	0 12	4 5	4 22	0 17	0 30 0	1 14
Bogra	1 4	10 0	11 5	1 5	1 0 4	2 9
	0 15	6 0	7 13	1 13	1 30 0	4 6
	1 0	7 15	8 6	0 31	0 31 0	1 15
Dinajpur ...	1 10	7 3	8 13	1 10	1 0 0	2 8
	0 10	3 8	4 4	0 36	1 32 0	4 8

The cost of green manuring is practically nothing. Say 2 annas per bigha in seeds. Both the plot received a small but equal quantity of cowdung.

DEMONSTRATIONS IN ONIONS.

District and name of cultivator.	Amount of seed.	Area.	Outturn.	Outturn per bigha approximately.	Price per bigha.	Cost per bigha approximate.	Profit.
RAJSHAHI.	MDS. SR.	B. K.	MDS. SR.	MDS. SR.	RS. A.		RS. A.
Kushi Atpohari	6 0	2 0	130 0	65 0	162 8	About Rs. 32-8 per bigha.	130 0
Rash Behari ...	1 0	0 8	9 0	21 0	52 8		20 0
Maffez Sheikh ...	5 0	1 12	56 0	36 0	90 0		58 8
Meghu Sarkar ...	3 0	1 0	62 0	62 0	155 0		122 8
Esmail Mondal	2 0	0 16	49 0	61 0	152 8		120 0
Mohar Sarker ...	0 10	0 2	4 0	40 0	100 0		77 8
Dorab Mondal ...	1 0	0 10	31 0	61 0	152 8		120 0
Sakir Monna ...	3 0	1 0	63 0	63 0	157 8		125 0
Naser Seikh ..	4 0	1 10	59 20	40 0	100 0		77 8

Manure used—2 maunds of castor cake per bigha and a small amount of cowdung.

	Rs.	A.
Expenditure (approximate)—		
3 maunds seeds at Rs. 3 per maund ...	9	0
2 maunds castor cake at Rs. 2-8 per maund ...	5	0
Cowdung	0	8
Labour	10	0
Irrigation	8	0
Total ...	32	8

N. GUPTA,

Superintendent of Agriculture, Rajshahi Division.

ANNUAL REPORT OF THE DEMONSTRATION WORKS IN THE DISTRICT OF RANGPUR FOR THE YEAR 1914-15.

BABU B. L. MUKHERJI was in charge of the demonstrations in the district up to the 20th April 1915. Babu J. K. Biswas took over charge on the 21st in addition to other duties. The demonstrations of the year under report were therefore mainly carried out by Benode Babu. Babus Benode Lal Mukherji and Jamini Kumar Biswas between them spent 175 days on tour. There were four demonstrators in this district up till May 1915, and three since then. The demonstrations were carried out mostly through the members of the Rangpur District Agricultural Association.

The demonstrations may be divided under the following heads :—

(1) Bonemeal.

(2) Introduction of hill potatoes.

(3) Ditto Meston ploughs, Planet Junior Handhoe and Hand Cultivators.

(4) Seed selection.

(5) Conservation of cattle dung.

(6) Growing of cowpea as greenmanure.

Bonemeal—

Quantity supplied.

Year.	Maunds.
1912-13	60
1913-14	70
1914-15	60

This year bonemeal was received on the 13th and 25th March 1915. Appendix I will show the result of the experiments on the effect of bonemeal for the first and second year.

The results do not show any marked advantage for bonemeal. As stated in last year's report, it succeeds only in a very few places of Rangpur. No new demonstration with bonemeal was started last year, and it was only supplied to a few raiyats on their own application.

Introduction of hill potatoes.—One hundred and fifty maunds of Darjeeling and Nainital potatoes were sold during the year to 267 men in 87 villages as

against 135 maunds last year. In 17 plots they were tested against country potatoes. Appendix II shows the result. Although the outturn of the hill potatoes is higher than that of the country potatoes, yet, on account of the better keeping quality of the latter, they are not so much in demand. They are, however, liked by people who can dispose of their produce quickly.

Introduction of improved implements.—Twenty Meston ploughs and 3 Handhoes were supplied to the raiyats as against 90 and 3, respectively, in the last year. In Hatibandha side of the Sadar Subdivision the raiyats seem to have got a liking for these implements, specially the plough, and orders have recently been received for more ploughs. The plough is very useful in light soil. Evidently the raiyats have seen the superiority of this plough to the local ploughs, but it does not work well in ploughing land for transplanting *aman* paddy. Considering the vast area under paddy land in Bengal it will be a decided improvement if an improved plough can be introduced which will suit the purpose. The Handhoe seems to be very good for interculture of tobacco, potato and sugarcane. The demand for it may gradually increase, as Rangpur is a big tobacco-growing district.

In many places difficulty is experienced in irrigating tobacco, although it is known to be profitable. The main difficulty, specially where the water-level is low, is the want of a suitable implement. A chain pump was obtained by the Court of Wards Estate and set up in Lalmonirhat. It worked quite well and was greatly liked by the people. But within a few days of its being set up there was a shower of rain, and its further use rendered unnecessary. It will be given a thorough trial next season. If it proves successful, there is likely to be a great demand as the people thoroughly realise the importance of irrigation for tobacco. There is no doubt that a much larger number of Meston ploughs and Handhoes would have been taken by the raiyats but for the war. The raiyats of Rangpur whose principal sources of income are jute and tobacco have been very hard hit, and have saved little to invest in new things.

Seed selection.—Jute seeds selected from the plants of 1913 were sown in 5 plots along with check plots. The results, as will be seen from Appendix III, appear to be encouraging. This method will have to be continued so as to be able to arrive at a definite conclusion. Selected seeds of special varieties have been obtained from the Fibre Expert and have been sown alongside with ordinary seeds.

Badshabhog paddy was supplied to eight men to compare with the local paddy. The result will be seen from Appendix IV. The results seem to be good.

Conservation of cattle dung.— Forty-five men erected simple temporary sheds to conserve the cattle dung and household refuse as against 420 men last year. Most of these sheds fell down long ago.

The best crop for green manuring so far appears to be cowpea.

Fodder crops.—Joar has been found both at the demonstration and dairy farm a very useful fodder crop. With a view to popularise its cultivation, 1 maund and 25 seers of seeds have been distributed free among selected cultivators.

Programme of work for 1915-16.—In addition to the items mentioned in last year's report, it is hoped to take up the introduction of Sumatra tobacco. This will depend somewhat on the result obtained from this year's crop and will be started on a small scale. It is also expected to distribute a much larger quantity of the Fibre Expert's improved jute seeds.

J. N. CHAKRAVARTY.

Forwarded.

The results appended are unreliable. I informed you that the District Agricultural Officer kept no records of the plots which gave negative results. Corrections by me.

K. MCLEAN.

The 3rd July 1915.

APPENDIX 1.

BONEMEAL—1ST YEAR.

Name and locality.	Treatment.	Area in acres.	Actual outturn.	Outturn per acre.	REMARKS.
			MDS. SRS. CH.	MDS. SRS. CH.	
Babu Ambika Charan Mittra, of Bongram.	Manured ...	·479	1 0 0	2 3 3	Jute.
	Unmanured ...	·413	0 30 0	1 32 9	
Babu Rajendra Kumar Sarker, of Kulaghat.	Manured ...	·281	2 10 0	7 37 10	Do.
	Unmanured ...	·397	2 11 0	7 25 8	
Babu Daliram Sarker, of Gogra	Manured ...	·322	1 17 0	5 32 14	Paddy.
	Unmanured ...	·644	2 25 0	4 3 5	
Babu Harendra Narayan Sarker, of Gogra.	Manured ...	·132	1 7 0	8 35 7	Jute.
	Unmanured ...	·157	1 0 0	6 14 1	
Ditto ditto	Manured ...	·099	0 33 0	9 3 0	Do.
	Unmanured ...	·099	0 26 0	7 4 5	
Ditto ditto	Manured ...	·132	0 34 0	6 26 3	Do.
	Unmanured ...	·132	0 22 8	4 9 6	
Sariat Khan, of Sindurna ...	Manured ...	1·281	16 15 0	12 31 3	Do.
	Unmanured ...	·628	2 32 0	6 2 0	
Ditto ditto ...	Manured ...	·057	0 14 0	6 2 0	Paddy.
	Unmanured ...	·099	0 26 0	6 20 2	
Babu Prasanna Kumar Pandit, of Gogra.	Manured ...	·107	2 25 0	24 8 0	Do.
	Unmanured ...	·107	2 10 0	20 39 7	
Md. Shahiruddin, of Tushbander	Manured ...	·148	1 35 0	12 22 2	Do.
	Unmanured ...	·231	1 22 0	6 26 3	
Babu Paramananda Das, of Ballamighar.	Manured ...	·115	3 0 0	25 7 5	Do
	Unmanured ...	·165	4 5 0	22 12 6	
Babu Jadab Chandra Ghose, of Mohimaganj	Manured ...	·165	4 6 8	25 7 5	Do.
	Unmanured ...	·165	3 35 0	23 17 12	
Babu Basanta Kumar Bakshi, of Damoderpur.	Manured ...	·248	3 15 0	13 24 8	Do.
	Unmanured ...	·330	4 0 0	12 4 0	
Babu Girija Prosad Nag, of Damoderpur.	Manured ...	·215	5 34 0	27 9 0	Do.
	Unmanured ...	·330	8 8 0	24 32 3	
Babu Surendra Nath Chowdhury, of Damoderpur.	Manured ...	·496	9 0 0	18 6 0	Do.
	Unmanured ...	·330	5 30 0	17 15 12	
Md. Ainulla Sheikh, of Damoderpur.	Manured ...	·3	3 6 0	10 23 8	Do.
	Unmanured ...	·330	3 13 0	10 2 5	
Md. Dukhu Shekh, of Badiakhali.	Manured ...	·2	4 8 0	21 7 0	Do.
	Unmanured ...	·2	3 24 0	18 6 0	
Babu Mukunda Ch. Roy, of Asadpur.	Manured ...	·330	0 20 0	1 20 8	Mustard.
	Unmanured ...	·165	0 5 0	0 30 4	
Md. Motiullah, of Nizpera ...	Manured ...	·214	1 5 0	5 11 12	Jute.
	Unmanured ...	·2	1 0 0	4 33 5	
Nazamuddin Sarker, of Haribhanga.	Manured ...	·036	0 14 0	19 26 8	Paddy.
	Unmanured ...	·065	0 12 10	9 33 4	
Md. Muchi Mali, of Nizpera ...	Manured ...	·157	1 20 0	9 21 2	Do.
	Unmanured ...	·090	1 5 0	6 32 4	
Md. Chakmal Khan, of Sindurna	Manured ...	·843	8 10 0	9 30 3	Jute.
	Unmanured ...	·3	1 10 0	4 6 6	
Md. Muchi Mali, of Nizpera ...	Manured ...	·148	1 20 0	9 21 2	Paddy.
	Unmanured ...	·090	1 5 0	6 32 4	
,, Sayeduddin, of Nizpera ...	Manured ...	·330	2 11 0	6 35 4	Do.
	Unmanured ...	·347	2 11 4	6 32 4	
Ditto ditto ...	Manured ...	·330	7 20 0	22 27 8	Do.
	Unmanured ...	·347	6 0 0	17 0 10	

APPENDIX II.

Potato.

Name and locality.	Treatment.	Area in acres.	Total outturn.	Outturn per acre.	Remarks.
			Mds. srs. ch.	Mds. srs. ch.	
Md. Kachimuddin, Panchayet of Khatkhatia.	Darjeeling ...	·190	31 12 8	164 19 6	
	Country ...	·181	24 0 0	131 38 10	
Md. Aseruddin Daftry, of Chabbishhajari.	Darjeeling ...	·235	33 12 0	141 16 12	
	Country ...	·280	20 25 0	73 2 4	
Md. Ajitulla, of Basirhat ...	Darjeeling ...	·048	4 0 0	92 1 8	
	Country ...	·092	8 0 0	86 8 8	
Bhola Nath Das, of Nizpara ...	Darjeeling ...	·042	7 12 8	195 34 12	
	Country ...	·022	2 27 0	98 31 10	
Babu Promotho Bhushan Mukharji, of Tushbhander.	Darjeeling ...	·247	13 5 0	85 3 5	
	Country ...	·214	15 0 0	77 8 4	
Babu Prasanna Kumar Pandit, of Gogra.	Darjeeling ...	·020	3 10 0	230 38 5	
	Country ...	·083	9 28 0	126 32 14	
Daliram Sarkar, of Gogra ...	Darjeeling ...	·028	3 30 0	129 18 12	
	Country ...	·028	2 32 0	96 32 0	
Mahatazuddin, of Tongbhanga	Darjeeling ...	·043	7 30 0	163 1 5	
	Country ...	·096	8 5 0	84 21 15	
Babu Ramananda Sanjval, of Naodabash.	Darjeeling ...	·074	17 35 0	254 4 0	
	Country ...	·024	3 19 0	140 15 5	
Sadar Mia, of Kaliganj ...	Darjeeling ...	·062	7 5 0	110 39 4	
	Country ...	·062	7 30 0	74 4 8	
Md. Chakmal Khan, of Sindurna.	Darjeeling ...	·024	6 36 0	278 12 0	
	Country ...	·227	14 29 0	160 3 14	
Md. Sariatkhan, of Sindurna ...	Darjeeling ...	·028	4 35 0	168 19 11	
	Country ...	·028	3 30 0	129 24 13	
Babu Guru Prasad Sarkar, of Bijgram.	Darjeeling ...	·108	13 20 0	124 1 0	
	Country ...	·198	8 6 0	41 2 9	
Babu Promotho Nath Banarji, of Fulchari.	Darjeeling ...	·148	12 30 0	84 28 0	
	Country ...	·033	1 20 0	45 1 8	
Babu Rajchandra Das, of Fulchari.	Darjeeling ...	·281	36 4 0	126 22 0	
	Country ...	·082	11 10 0	60 39 10	
Md. Shaharulla Mustafi, of Mianpara.	Darjeeling ...	·041	14 10 0	153 8 10	
	Country ...	·149	21 11 0	144 8 10	

APPENDIX III.

Jute.

Name and locality.	Treatment.	Area in acres.	Actual outturn.	Outturn per acre.	Remarks.
			Mds. srs. ch.	Mds srs. ch.	
Sadu Teli, of Tushbhander ...	Selected ...	·052	0 35 0	16 25 8	
	Ordinary ...	·108	1 5 0	10 20 7	
Babu Monoranjan Banerjee, of Tushbhander.	Selected ...	·181	1 0 0	5 17 12	
	Ordinary ...	·330	1 20 0	4 21 8	
Md. Shaharatulla, of Tushbhander.	Selected ...	·033	0 34 0	19 26 8	
	Ordinary ...	·082	1 5 0	13 24 8	
Md. Nur Bux Shekh, of Hatibandha.	Selected ...	·099	0 32 0	8 27 14	
	Ordinary ...	·099	0 25 0	6 32 4	
Md. Amanatullah, of Hatibandha.	Selected ...	·016	0 9 0	13 24 8	
	Ordinary ...	·016	0 7 0	10 23 8	

APPENDIX IV.

BADSHABHOG PADDY.

Name and locality.	Treatment.	Area in acres.	Actual out-turn.	Outturn per acre.	REMARKS.
			MDS. SRS. CH.	MDS. SRS. CH.	
Babu Biswambhar Das, of Nizpera.	Badshabhog ...	·115	1 18 0	12 19 2	
	Tulpakri ...	·115	1 15 0	11 31 14	
Namaruddin, of Hatibandha ...	Badshabhog ...	·010	0 15 0	36 12 0	
	Tulpakri ...	·137	1 29 0	27 27 2	
Samiruddin Shaikh, of Tushbhander.	Badshabhog ...	·069	0 20 0	7 10 6	
	Rasulbhog ...	·069	0 16 0	5 34 7	
Babu Bidhu Bhusan Barman, of Hatibandha.	Badshabhog ...	·006	0 6 0	24 8 0	
	Malsira ...	·006	0 3 0	19 26 8	
Basu Shaikh, of Tushbhander ...	Badshabhog ...	·045	0 7 0	3 38 13	
	Malsira ...	·628	1 28 0	1 38 10	
Babu Basanta Kumar Barman, of Hatibandha.	Badshabhog ...	·044	0 35 0	19 26 8	
	Binnaful ...	·148	2 10 0	15 5 0	
Nabin Chander Patwari, of Lalmanirhat.	Badshabhog ...	·120	1 20 0	13 24 8	
	Tulpakri ...	·082	1 3 0	13 0 4	
Baharuddin Mocter, of Kurigram	Badshabhog ...	·082	2 36 4	35 6 10	
	Khirshabhog ...	·053	1 6 4	21 7 0	

J. N. CHAKRAVARTI,
Supdt. of Agriculture, Rangpur.

ANNUAL REPORT OF THE DEMONSTRATION WORK OF THE SUPERINTENDENT OF AGRICULTURE, CHITTAGONG DIVISION.

No. 969, dated Chittagong, the 5th July 1915.

From—D. DATTA, ESQ., B.SC., M.S.A., Superintendent of Agriculture, Chittagong Division,

To—The Director of Agriculture, Bengal, Calcutta.

(Through the Deputy Director of Agriculture, Bengal, Dacca.)

WITH reference to your letter No. 3743-48, dated the 3rd May 1915, I have the honour to submit herewith my annual report for the year ending the 30th June 1915.

The usual demonstrations recommended by the Department were carried on in the districts under my charge. The first and most important of which, namely, the introduction of manure for paddy, has been attended with various success as the report in the Appendices I and I(*b*) will show.

Bonemeal was applied on 59 plots for paddy and 13 plots for jute, totalling 72 plots in all. No bonemeal experiment was tried at Chandpur for this year, and neither any experiment was conducted at Comilla owing to the transfer of Demonstrator Tandal Singh nor was the manure brought by Nawab Sayed Hossam Hyder Chaudhuri and the Tippera Raj utilized.

From the perusal of the results submitted in Appendices I and I(*b*), it will be easily seen that bonemeal cannot be used as a panacea for the enrichment of our soils. The greatest and the most uniform success has been achieved in the light and recent alluvial soils of Noakhali Sadar, where the average profit has been Rs. 12-3 per acre. Out of 19 plots there, only four plots average Rs. 2-12-6. The small profit in these plots was due to negligence on the part of the cultivators (late manuring and late transplantation), and, if these are left out of consideration, the average for Noakhali increases to Rs. 14 per acre. In and around Harinarayanpur and Noakhali saltpetre was used by 5 persons, who though are satisfied with apparently better crops, but the average profit was only Rs. 14-6. All these 5 persons are now firm believers of better result in the use of bonemeal mixed with saltpetre though the actual money value was not greater in this year's experiment. If we could really add some cheap nitrogenous manure with bonemeal to the similar soils, the crops would not only be heavier, but the profits would also swell proportionately. It seems to me necessary to investigate in this line.

In Brahmanbaria bonemeal was applied in 24 plots; of these 10 did not yield any profit at all. On the remainder 14, jute was grown and a small average profit of Rs. 9 per acre was secured. As regards the *aman* paddy to which the bonemeal was applied last year, it may be said that there was a great drought during the latter part of the season, and though the plants in the manured plots were more vigorous than those of the unmanured, a very slight difference was apparent in the actual yield of grains. Some of the last year's plots are, however, showing some residual effects this year.

In Chittagong, seven plots were tried and profit varied from Re. 1-8 to Rs. 24 per acre. The plots are not sufficiently numerous to warrant any average figure and the demonstration evidently shows the spartine behaviour of bonemeal in Chittagong soil. The Chittagong soil is not very uniform and no extensive trials have so far been made.

Last year an attempt was made to use bonemeal at Feni in the expectation of sufficient hands to carry on the demonstration started. But as none was available, the result has been very disappointing. It is, however, to be hoped that, with the new demonstrator, some success might be achieved.

With the exception of Chittagong and Brahmanbaria where the number of manurial plots are handy and where the people are also more educated and more intelligent, I could not persuade the cultivators of the other subdivisions to keep a regular account of their demonstration plots and neither was it necessary for Noakhali where demonstration has already proved successful beyond measure. The residual effects of the manure are given in Appendix I(*b*). Out of six plots in Chittagong one just paid the cost of manure in the second year, and another paid a profit of Rs. 2-4 only. The remaining four plots have shown an average profit of Rs. 16-14 nearly per acre in two years, or Rs. 8-7 per annum. At Brahmanbaria out of

9 plots two are still in a deficit of Rs. 4 and Rs. 7. Three plots show an increase of Rs. 7 to Rs. 9, or an average of Rs. 8-5, and in the other four a profit varying from Rs. 13 to Rs. 29 per acre was secured for the two consecutive years.

Seed selection.—The method of seed selection as was pursued last year has been continued. The comparison of selected and non-selected *aus* paddy in the last agricultural year, *i.e.*, in 1321 B.S. was published in the last annual report. The whole *aus* crop of Brahmanbaria has been entirely destroyed this year, and hence the entire work of seed selection is to be begun afresh from the next agricultural year. The *aus* crop of Chandpur has not as yet been harvested; so the second year's results about the outturn of the selected seeds cannot be incorporated in this report. Appendix II will show the yield of the selected jute seeds versus ordinary seeds sown by cultivators. In Noakhali Sadar there have been 11 plots and the average increase works out to be 4-13 maunds per acre in favour of the selected seeds. In Chandpur an increase of 1-4 mds. and in Brahmanbaria of about 3 maunds per acre has been noticed. In Noakhali, however, people have not grown jute much this year, and every one of them has discarded his own seeds in favour of the selected seeds and has adopted our method of selection. In Brahmanbaria jute grown from the second year's selected seeds has also been destroyed by flood. It will be very difficult to get any seed for the next year's crop.

Introduction of new crop.—An attempt was made for the introduction of superior varieties of sugarcane cutting in the sugarcane regions of my division, but owing to the dearth of cuttings in the Dacca Farm the work did not proceed further. There are many centres where sugarcane is already grown and the cultivation may be further extended. Thana Sitakunda, Mirsarai, Satkania, Raizan of Chittagong, Parasuram and Sagalnia of Feni, Chandhagram and Chandina of Comilla Sadar are the places where better varieties of sugarcane may be very successfully introduced.

Potatoes.—Potatoes were distributed amongst the cultivators of various subdivisions as under :—

Brahmanbaria ...	...	6 mds. (Darjeeling varieties). 1½ .. (Nainital ditto).
Chandpur ...	...	30 „ (Darjeeling). 70 „ (Nainital).
Comilla .	...	23 „ (Darjeeling). 12 „ (Nainital).
Noakhali ...	...	20 „ (Darjeeling). 20 „ (Nainital).
Chittagong ...	...	14 „ (Darjeeling). 6 „ (Nainital).

The results of the demonstrations are in Appendix III. The demonstration was most successful in Noakhali where the average outturn was 177 maunds per acre for Darjeeling potatoes with a mean profit of Rs. 374 per acre (calculating the price of new potatoes at Rs. 3 and seed potatoes at Rs. 10). This mean profit does not take into consideration the cost of labour and manure, for which none of the cultivators paid. Ambika Charan Mukhtar bought some manure, and his profit has also been above the others. In Noakhali potato was grown after *aus* and it did well even without manure. The very low yield of 50 to 60 maunds of Darjeeling potatoes per acre was obtained from the very tiny tubers which were found in some of the bags sent from Darjeeling. In this connection I cannot but mention the names of Ambika Charan Mukhtar and Parbati Charan Kabiraj, both of whom took the keenest interest in our potato demonstration. The former gentleman deserves special mention for the way in which he conducted various small experiments to satisfy himself as to the effects of manure, irrigation and size of seed potatoes. Happily there was no outbreak of any disease in any of these plots. A potato exhibition was held to encourage the local cultivators, and it was very well attended. Prizes to the value of Rs. 150 have been awarded. A purely agricultural co-operative society for the purchase of seed potatoes and agricultural implements will greatly help the cultivators of this region. From the interest of the people in the last Potato Exhibition we could safely say that 500 maunds of potatoes even would be a mere drop in the ocean to meet the demands of the people of the locality. It has been seen that irrigation might largely increase the outturn obtained, and for this a few chain pumps of 12-foot draft would be necessary. The question of

advancing these sums to the cultivators looms as an important factor in the extension of potato cultivation. Should there be more direct co-operation between the Co-operative Department and ours, such difficulties would be very easy to solve, and I, for myself, cannot believe that energies of the Co-operative Department could be misplaced if societies might be well organised for agricultural purposes rather than for paying old debts and thus spending the money in non-recuperative channels.

It has been seen this year all through my division that Darjeeling potato is a heavier yielder than Nainital. Last year's variety sent as Nainital gave a better outturn than this year's Nainital variety.

In Chittagong potato was tried in 34 plots. It is very sad to note that potatoes at Sanka Valley which is specially noted for it proved a very miserable failure owing to the very early rains which destroyed the potato sprouts entirely. The average outturn for Darjeeling has been 69 maunds per acre, neglecting the plots which suffered from excessive rain, disease and other uncontrollable factors. The yield of Nainital in Nasirabad might be increased greatly by proper irrigation.

In Comilla potatoes have been grown in regions where it was not tried before, and very small quantity of seeds was distributed and the low outturn in many cases is due to an utter want of knowledge about the habit of the crops and also to the novelty of the crop itself. Where the crop has been grown in moderate quantities and proper care has been taken, the outturn has been normal, viz., for Darjeeling we got 122 mds. per acre as an average and for Nainital in the best plots about 91 maunds. An outturn as high as 361 maunds and 268 maunds per acre has been obtained by Satish Chandra Sen of Srimanthapur and Elahi Baksh of Chandina, respectively.

In Brahmanbaria, too, very good crop was obtained at Urshiara and Mashawa, Ruposdi and Rasulabad, and the average outturn was 260 maunds for Darjeeling and 130 maunds for Nainital.

In Chandpur about 100 maunds of the potato seed was distributed. The potato is grown there in jute lands after the harvest of the jute crop. It seems that jute is a very exhausting crop, and the outturn of potato is decidedly poor, though the land to all outward appearance seems to be quite suitable for it. There were some 103 plots where potato was grown, and out of them there was a total loss of Rs. 32-8 per acre in 64 plots. The condition of the raiyats was, to a large extent, responsible for the loss sustained. Owing to the low price of jute which is the mainstay of the people in these regions, there is not a sufficiency of ready money to buy rice and they laid their hands on anything they could get at. It is remarkable to note that, though the bazar rate of potatoes was Rs. 2-12 to Rs. 3 per maund, the cultivators sold their crop at the low price of Re. 1-12 and some did not sell their crop at all but used it as their staple food. The people there apply all the available cowdung to jute lands, and do not preserve the cowdung retained in the rainy season as the cowsheds are built mostly in the lowest level of their homestead lands, and it is not an uncommon sight to see all the dung, etc., washed by the flood water. It is, therefore, proposed to try artificial manure next year on this char land, and to see the outturn that may be obtained out of the potato crop. In places where manure could be used the outturn was indeed very heavy, and the adaptability of the soil to the crop has been well justified. Likewise where potato has been grown after paddy, as in Chinamura, the outturn has been greater than the plots where potato was sown after jute, viz., about 102 and 140 maunds per acre.

DWIJA DAS DATTA,

Superintendent of Agriculture, Chittagong Division.

APPENDIX I.

Bonemeal Demonstration.

NOAKHALI.

Serial No.	NAME.	Village.	Length and breadth of the plot.	Yield of the plot per acre.	Yield of the check plot per acre.	Difference.	Money value of the difference.	Profit or loss per acre.	Name of the crop.
1	2	3	4	5	6	7	8	9	10
			CUBITS	MDS. SRS.	MDS. SRS.	MDS. SRS.	RS. A.	RS. A.	
1	Sarada Kumar Roy ...	Krishna Rampur	71 45	16 8	8 26	7 22	22 12	13 12 profit	Aman.
2	Kali Prasanna Acherji	Goalpur ...	80 40	28 22	19 10	9 12	28 0	19 0 ,,	Do.
3	Anour Ali	Mohodwir ...	64 50	18 16	12 30	5 16	16 2	7 2 ,,	Do.
4	Suna Mia	Fakirpur ...	80 40	16 23	12 5	4 21	13 2	4 2 ,,	Do.
5	Renu Mia	Chandrapur ...	88 36	27 17	16 13	11 4	33 4	28 4 ,,	Do.
6	Oali Mia	Maizdi	84 38	23 18	15 37	7 21	22 10	13 10 ,,	Do.
7	Dudas Mia	Chamrakhola ...	80 40	18 15	10 31	7 24	23 3	14 3 ,,	Do.
8	Koilash Karmakar ...	Akneshpur ...	68 47	21 8	13 37	7 11	21 13	12 13 ,,	Do.
9	Kali Maddi	Maizdi	80 40	22 29	15 39	6 30	20 4	11 4 ,,	Do.
10	Nur Mia	Do.	61 52	21 27	13 25	7 2	21 4	12 4 ,,	Do.
11	Khirod Chandra Mazumdar.	Uzalpur	88 36	25 39	14 10	11 29	35 2	26 2 ,,	Do.
12	Sadek Ali	Lakshmi Narayanpur.	100 32	18 6	13 25	4 19	13 6	4 6 ,,	Do.
13	Ali Mia	Ditto ...	64 50	15 35	10 25	5 10	5 12	6 12 ,,	Do.
14	Neajor Rahaman ...	Nityanandapur	64 50	22 25	13 10	9 15	28 2	19 2 ,,	Do.
15	Harmuz Kha	Maizdi	96 36	14 0	8 0	6 0	18 0	9 0 ,,	Do.
16	Kali Prasanna Pattya	Do.	80 40	15 35	9 25	6 10	18 12	9 12 ,,	Do.
17	Sasi Bhusan De ...	Alampur ...	57 56	13 26	10 23	3 3	9 4	0 4 ,,	Aus.
18	Azfar Ali	Darbeshpur ...	57 56	25 6	19 6	6 0	18 0	9 0 ,,	Do.
19	Sarat Chandra Das ...	Ditto ...	96 33	12 9	8 16	3 33	11 6	2 6 ,,	Do.

N.B.—Price of Bonemeal has been taken at Rs. 3 per maund or Rs. 9 per acre and that of Paddy at the market rate of Rs. 3 per maund.

Bonemeal and Saltpetre Demonstration.

			BIGHAS	MDS. SRS.	MDS. SRS.	MDS. SRS.	RS. A.	RS. A.	
1	Ambica Charan De ...	Gupta Anka ...	6	19 30	10 8	9 22	28 12	13 12 profit	Aman.
2	Tarini Charan Sarkar	Joykrishnapur...	3	20 31	10 5	10 32	32 8	17 8 ,,	Do.
3	Sarada Charan Bhomic	Ditto ...	1	19 20	10 20	9 0	27 0	12 0 ,,	Do.
4	Jogesh Chandra Chowdhury.	Alipur	1	16 30	.....	.....	.....	.....	Do.
5	Prasanna Kumar Pandit.	Chamrakhola ...	3	13 30	.....	.....	.....	.....	Do.

Bonemeal Demonstration.

CHITTAGONG.

			YDS.	MDS. SRS.	MDS. SRS.	MDS. SRS.	RS A.	RS. A.	
1	Gagan Chandra Dey ...	Betagi	16 34	26 28	22 9	3 19	10 8	1 8 Profit	Aus.
2	Shayama Charan De...	Bagaon	16½ 35	29 13	28 17	0 36	2 11	6 5 Loss	Do.
3	Rajani Kanta Bose ...	Ditto	12 30	25 8	21 7	4 1	12 1	3 1 Profit	Do.
4	Har Kishore Barua ...	Pahartali ...	45 30	40 31	9 23	11 7	33 7	24 7 ,,	Do.
5	Rakul Mussaddi ...	Ditto	20 40	30 10	24 8	6 2	18 2	9 2 ,,	Do.
6	Mahendra Lal Barua...	Ditto	19 40	27 30	23 3	3 28	11 0	2 0 ,,	Do.
7	Surendra Kumar Dey...	Bagoan	16 36	29 35	21 0	8 35	26 4	17 4 ,,	Do.

Bonemeal Demonstration.

SUBDIVISION—FENI.

Serial No.	NAME.	Village.	Length and breadth of the plot.	Yield of the plot per acre.	Yield of the check plot per acre.	Difference.	Money value of the difference.	Profit or loss per acre.	Name of the crop.
1	2	3	4	5	6	7	8	9	10
			B. K.	MDS. SRS.	MDS. SRS.	MDS. SRS.	RS. A.	RS. A.	
1	Abdul Huq Meah ...	Charipur ...	1 0	10 20	9 0	1 20	4 8	4 8 Loss	Aman.
2	Muhammad Syed ...	Lakshipur ...	0 10	9 0	8 10	0 30	2 4	6 12 ,,	Do.
3	Chandra Nath Mazumdar.	Sultanpur ...	0 10	10 20	10 20	.....	.....	9 0 ,,	Do.
4	Kashim Baksh ...	Bejoy Sing ...	0 10	5 10	6 0	0 30	2 4	11 4 ,,	Do.
5	Hyder Ali	Baraipur ...	0 5	5 4	5 4	.....	.....	9 0 ,,	Do.
6	Abdul Ganni	Mathihara ...	0 10	6 30	6 30	.....	.....	9 0 ,,	Do.
7	Basaruddin Ahmed ...	Ditto ...	0 10	7 2	7 20	0 18	1 6	10 6 ,,	Do.
8	Gopal Kishore Sil ...	Doulatpur ...	0 10	9 0	6 30	2 10	3 12	5 4 ,,	Do.
9	Gagan Chandra Sil ...	Ditto ...	0 10	4 20	3 0	1 20	4 8	4 8 ,,	Do.
10	Muhammad Faiz ...	Rampur ...	0 10	10 32	10 32	.....	.....	9 0 ,,	Do.
11	Dina Bandhu Banik ...	Malipur ...	0 10	9 0	7 20	1 20	4 8	4 8 ,,	Do.
12	Hari Mohan Das ...	Soupur ...	0 10	6 30	6 12	0 18	1 6	7 10 ,,	Do.
13	Frishna Mohan Das ...	Ditto ...	0 5	3 0	6 0	6 0	.....	9 0 ,,	Do.
14	Dana Miah	Biraiji ...	0 10	3 30	3 0	0 30	2 4	6 12 ,,	Do
15	Abdul Patari	Malipur ...	0 10	12 30	12 0	0 30	2 4	6 12 ,,	Do.
16	Basiruddin Ahmed ...	Pachgachia ...	0 10	7 32	7 32	.....	.....	9 0 ,,	Do.
17	A. Rahaman	Ditto ...	0 10	7 2	7 20	0 18	1 6	10 6 ,,	Do.

Bonemeal Demonstration.

SUBDIVISION—BRAHMANBARIA.

			CUBITS.		MDS. SRS.		MDS. SRS.		MDS. SRS.		RS. A.	RS. A.	
1	Nil Madhab Barman Roy.	Brahmanbaria	63	45½	13	10	12	31	0	19	1 7	7 9	loss Aman.
2	Iswar Chandra Barman Roy.	Fulbaria ...	63	42	15	21	14	10	1	11	3 14	5 2	,, Do.
3	Jamini Kumar Barman Roy.	Brahmanbaria	70	63	17	22	17	0	0	22	1 12	7 4	,, Do.
4	Rahimuddin	Pairtala ...	70	42	25	20	23	22	1	38	5 12	3 4	,, Do.
5	Muncharali	Ditto ...	70	42	18	37	17	27	1	10	3 12	5 4	,, Do.
6	Ditto	Ditto ...	70	63	15	36	15	5	0	31	4 10	4 6	,, Jute.
7	Icha ali	Ditto ...	70	84	22	8	21	35	0	13	1 2	7 14	,, Aman.
8	Abdul Abad	Talsahar ...	70	84	7	16	6	11	1	5	4 8	4 8	,, Mustard.
9	Birbal	Ditto ...	70	84	9	0	7	2	1	38	11 13	2 13	profit Ditto.
10	Naibullah	Natai ...	105	126	15	8	14	0	1	8	7 3	1 13	loss Jute.
11	Jahabox	Do. ...	70	84	16	14	13	20	2	34	17 2	8 2	profit Do.
12	Kaimullah	Do. ...	63	42	15	30	12	30	3	0	18 0	9 0	,, Do.
13	Kahetullah	Do. ...	63	42	15	30	14	10	1	20	4 8	4 8	loss Do.
14	Mainaddin	Do. ...	70	84	31	11	28	15	2	26	15 15	6 15	profit Do.
15	Faizaddin	Do. ...	63	45½	20	16	11	38	8	18	50 11	41 11	,, Do.
16	Rashid	Do. ...	70	42	14	25	11	12	3	13	19 15	10 15	,, Do
17	Maksud Ali	Bhatpara ...	70	84	15	29	14	6	1	23	9 9	0 9	,, Do.
18	Abu	Do. ...	70	84	19	13	17	5	2	8	13 4	4 4	,, Do.
19	Tarar Bap	Barial ...	105	119	15	19	13	11	2	8	13 4	4 4	,, Do.
20	Kailash Chandra Chakravarty.	Mirjapur ...	63	42	14	25	13	32	1	33	11 0	2 0	,, Do.
21	Rohini Chowdhury ...	Ditto ...	70	84	16	17	14	2	2	15	14 4	5 4	,, Do.
22	Ditto ...	Ditto ...	70	84	16	34	13	29	3	5	18 12	9 12	,, Do.
23	Ditto ...	Ditto ...	70	84	14	0	10	24	3	16	20 16	11 6	,, Do.
24	Ram Sundar Kapali ...	Dhemsa ...	112	91	37	39	28	19	9	20	19 0	10 0	,, Onion.

APPENDIX (IB).

Bonemeal residual effects—Brahmanbaria.

Serial No.	Name of the cultivators.	Village.	Length and breadth of the plot.	Difference of yield per acre between manured and unmanured plot in 1913.	Difference of yield between manured and unmanured plot in 1914.	Cumulative difference per acre for the two years.	Total profit.	REMARKS.
1	2	3	4	5	6	7	8	9
				Mds. Srs.	Mds. Srs.	Mds. Srs.	Rs. A.	
1	Koilash Mistry ...	Ramrail ...	36 30	12 15	0 18	12 33	29 7	
2	Devendra Chandra Datta.	Ditto ...	36 30	7 0	0 13	7 13	13 0	
3	Krishna Kumar Sen ...	Urshiura ...	36 30	6 30	1 27	8 17	16 4	
4	Abinash Chandra Datta ...	Paitarhata...	36 30	5 5	0 18	5 23	7 11	
5	Jalaluddin ...	Brahmanbaria	36 30	8 15	0 18	8 33	17 8	
6	Sreedhan Nama Sudra ...	Ditto ...	36 30	5 35	0 5	6 0	9 0	
7	Atul Chandra Dhupi ...	Urshiura ...	36 30	0 0	1 27	1 27	4 0	loss.
8	Monohar Kha ...	Ramrail ...	36 30	5 25	0 24	6 9	9 11	
9	Bepari	Ditto ...	36 30	0 0	0 22	0 22	7 5	loss.

Bonemeal residual effects—Chittagong.

Serial No.	Name of the cultivator and village.	Area of the plot.	Difference of yield per acre between manured and unmanured plot in 1913.	Difference of yield between manured and unmanured plot in 1914.	Cumulative difference per acre for the two years.	Total profit.	
1	2	3	4	5	6	7	8
			Mds. Srs.	Mds. Srs	Mds. Srs.	Rs. A.	
1	Abdul Ganni Sadagar, Lamarbazar	1 bigha ...	6 0	3 0	9 0	18 0	
2	Maulavi Kazimali Mia, Bakali ...	Ditto ...	0 30	3 0	3 30	2 4	
3	Abdul Litip Munshi, Lallsha bazar.	Ditto ...	7 20	0 30	8 10	15 12	
4	Nurali, Lallsha bazar	Ditto ...	6 0	1 20	7 20	13 8	
5	Hamdu Mia, Lallsha bazar ...	Ditto ...	9 0	0 30	9 30	20 4	
6	Narayan Singh Subadar, Bagmani Rampur.	Ditto ...	3 0	0 0	3 0	0 0	

District Tippera—Subdivision Comilla-Sadar—Crop Aman Paddy.

Serial No.	NAME.	Village.	Length and breadth of the plot.	Quantity selected and sown.	Yield of the plot.	Yield of the checkplot.	Yield per acre of the plot.	Yield per acre of the check plot.	Difference.
1	2	3	4	5	6	7	8	9	10
			Yds.	S. Ch.	Md. Srs.	Md. Srs.	Md. Srs.	Mds. Srs.	Mds. Srs.
1	Symaddi ...	Durgapur ...	40 40	0 4	5 38	5 35	18 0	17 31	0 9
2	Anu Mia ...	Noapara ...	50 20	0 4	4 2	4 1	19 24	19 19	0 5
3	Abdul Ali ...	Ghoramara ...	20 30	0 4	2 32	2 30	22 23	22 7	0 16
4	Choitanya Krishna De	Durgapur ...	45 40	0 4	8 25	8 22	23 7	22 39	0 8
5	Boikunta Chandra De	Durgapur ...	50 40	0 4	9 37	9 35	28 0	23 35	0 5
6	Jogesh Chandra De ...	Durgapur ...	30 20	0 4	2 30	2 30	22 7	22 7	0 0
7	Amzad Ali ...	Krishnapur ...	25 20	0 4	2 20	2 22	24 8	24 8	0 0
8	Nur Ali ...	Narpur ...	30 30	0 4	4 2	4 1	21 31	21 26	0 5
9	Anu Bali ...	Araiura ...	40 20	0 4	3 30	3 29	22 27	22 21	0 6
10	Bacharaddi ...	Jagannathpur ...	20 15	0 4	1 20	1 19	24 8	23 32	0 16

APPENDIX II.

District Tippera—Subdivision Brahmanbaria—Crop Jute.

Serial No	NAME.	Village.	Length and breadth of the plot.	Quantity selected and sown.	Yield of the plot.	Yield of the check plot.	Yield per acre of the plot.	Yield per acre of the check plot.	Difference.
1	1	3	4	5	6	7	8	9	10
			Yds.	S. Ch.	M. S.	M. S.	M. S.	M. S.	M. S.
1	Harish Chandra De ...	Kendui	4½ 11	0 4	0 12	0 10	29 14	24 18	4 38
2	Haran Chandra Mali...	Do.	6½ 14½	0 4	0 11	0 8	14 6	10 10	3 36
3	Girish Chandra Sil ...	Do.	6½ 12½	0 4	0 9	0 8	13 36	12 9	0 17
4	Mahim Chandra Dhupi	Do.	3½ 15	0 4	0 10	0 9	23 10	20 37	2 13
5	Kailash Chandra Dhupi.	Do.	3 24	0 3	0 11	0 10	18 19	13 30	1 11
6	Bhairab Chandra De	Do. ...	5 4	0 4	0 8	0 7	40 13	35 11	4 2
7	Dwega Sankar Bhattacharji.	Weshiwra ...	7½ 5	0 3	0 7	0 6	22 35	19 24	3 11
8	Bipin Chandra Dhupi	Do. ...	12 5	0 4	0 10	0 8	20 6	16 5	4 1
9	Jamini Kanta Burman	Poirtala ...	5 7½	0 4	0 10	0 8	32 11	26 5	6 6
10	Jananuddin	Bhedoshudar ...	20 10	0 8	0 20	0 18	12 8	10 35	1 13
11	Hari Mohan Roy ...	Singesbil ...	10 5	0 4	0 8	0 7	19 24	16 37	2 27
12	Mohendra Kumar Gupta.	Bhola kot ...	12½ 7½	0 4	0 9	0 8	12 9	10 27	1 22
13	Bhadu Kapali ...	Ditto	15 5	0 4	0 10	0 9	16 5	14 16	1 29

District Tippera—Subdivision Chandpur—Crop Jute.

			Yds.	S. Ch.	M. S.	M. S.	M. S.	M. S.	M. S.
1	Ismail Pradhania ...	Bisnupur ...	½ ½	0 4	0 20	0 18	4 1	3 29	0 12
2	Bande ali munshi ...	Do.	½ ½	0 4	0 25	0 15	5 1	3 0	2 1
3	Apta Baddin Rari ...	Do.	½ ½	0 4	0 30	0 19	6 2	3 34	2 8
4	Samud Ali Peda ...	Do.	½ ½	0 4	0 20	0 18	4 1	3 29	0 12
5	Nabin Chandra Dhupi	Mabarakali ...	½ ½	0 5	0 0	0 38	5 8	4 36	0 12
6	Ajgor Ali Haldar ...	Silmaddi ...	½ ½	0 4	0 20	0 19	4 1	3 34	0 7
7	Kazimaddi Pradhania	Do.	73½ 73½	0 6	1 5	1 0	4 1	3 23	0 18
8	Abdul Zabbar Pradhania.	Do.	½ ½	0 4	0 25	0 17	5 1	3 17	1 24
9	Mafizuddin Pradhania	Do. ...	½ ½	0 4	0 30	0 17	6 2	3 17	2 25
10	Mainaddi Pradhania	Mabarakali ...	½ ½	0 4	0 20	0 15	4 1	3 0	1 1
11	Mainaddi Kazi ...	Silmaddi ...	½ ½	0 4	0 23	0 18	4 25	3 29	0 36

District Noakhali—Subdivision Sadar—Crop Jute.

			Yds.	S. Ch.	M. S.	M. S.	M. S.	M. S.	M. S.
1	Ram Kumar De ...	Gupta-anka ...	82 16	0 10	3 30	1 4	13 33	4 2	9 31
2	Ambika Charan Muktear.	Ditto ...	50 25½	0 12	4 7	2 10	15 33	8 20	7 13
3	Kula Chandra Dey ...	Ditto ...	45 20 / 30 12	0 7	1 38	1 15	11 5	8 8	2 37
4	Korban Ali	Kashirampur ...	45½ 23	0 9	3 0	2 10	13 34	9 28	4 6
5	Mula Mia	Fakirpur ...	28½ 25½	0 9	2 18	2 0	16 12	13 32	2 20
6	Meher Ali	Do. ...	80 20	0 8	4 20	3 12	13 24	9 39	3 25
7	India Chandra Bhowmick.	Joykrishnapur...	41 15	0 6	2 20	2 10	14 20	7 38	11 22
8	Akhaya Kumar Sil ...	Maizdi	40 40	0 10	4 0	3 88	12 4	9 27	2 17
9	Chandra Kumar Sardar.	Do.	42 18	0 5	3 9	2 20	20 19	19 30	0 29
10	Sarat Chandr Des ...	Darteshpur ...	36 20	0 8	2 11	1 38	15 11	13 4	2 7
11	Abdul Majid	Maizdi	45½ 42	0 14	4 24	4 6	11 26	10 14	0 12

Length and breadth of the cheak plot was 60×30½ yds.

APPENDIX III.

Potato Results.

NOAKHALI.

Serial No.	NAME	Village.	Length and breadth of the plots.	Quantity of seeds.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Price of yield per acre.	Profit or loss per acre.	Variety of seed.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Yds	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
1	Kamini Kumar Dhupi	Harinarayanpur	30 24	0 28	9 0	10 30	242 0	107 8	726 0	618 8	Darjeeling.	
2	Chandra Kumar Sardar.	Maizdi ...	34 16	0 5	4 30	4 14	169 0	43 8	507 0	463 8	Ditto.	
3	Abdul Nazir ..	Do. ...	44 20	0 19	10 20	10 18	231 0	104 8	693 0	588 8	Ditto.	
4	Abdul Bari Pandit ...	Do. ...	15 20	0 5	2 0	14 26	294 26	146 8	438 10	292 2	Ditto.	
5	Ashaya Kumar Sil ...	Do. ...	18 12 / 18 15	0 5	3 0	4 39	119 20	49 12	358 8	308 12	Ditto.	
6	Ram Kumar De ...	Amarpur ...	20 14	0 10	3 0	19 11	207 17	192 12	652 5	459 9	Ditto.	
7	Haranath Chakravarty	Maizdi ...	43 20	0 20	8 20	11 10	191 13	112 8	574 0	461 8	Ditto.	
8	Purna Chandra De ...	Maheshpur ...	18 10	0 10	1 33½	26 37	197 25	269 4	592 14	323 10	Ditto.	
9	Hara Kishar Bhattacharjee.	Noakhali ...	15 12 / 12 10	0 20	2 35	32 10	185 20	322 8	556 8	234 0	Ditto.	
10	Bharat Chandra Har	Bairtola	26 13	0 10	2 30	15 15	169 5	153 12	507 6	353 10	Ditto.	
11	Sadak Ali	Krisnarampur ...	56 35	1 0	14 0	9 11	134 17	92 12	403 5	310 9	Ditto.	
12	Tarani Chandra Sirkar.	Joykrishnapur ...	64 24	0 24	9 0	7 22	113 17	75 8	340 5	264 13	Ditto.	
13	Abdul Majid	Krishnarampur ...	25 25	0 10	3 30	7 29	116 6	77 4	348 7	271 3	Ditto.	
14	Nishi Chandra Lod ...	Shibpur ...	47 40	0 35	10 35	19 12	111 39	193 0	335 14	142 14	Ditto.	
15	Manindra Babu ...	Noakhali ...	12 40	0 5	1 2	18 13	154 0	183 4	462 0	278 12	Ditto.	
16	Joyada Prasanna Datta.	Do. ...	20 14	0 15	1 20	25 37	103 27	259 4	311 0	51 12	Ditto.	
17	Ananda Chandra Majumdar.	Maizdi ...	33 11	0 20	5 0	26 26	266 26	266 8	800 5	533 13	Ditto.	
18	Mohashasak Kolar ...	Maizdi	20 15 / 35 10	0 10	4 0	7 17	188 33	74 4	566 5	492 1	Ditto.	
19	Taraprasanna Chakavarty.	Do.	54 15 / 24 15	0 20	5 10	8 10	86 14	82 8	259 3	176 11	Ditto.	
20	Kamini Kumar Dhar	Chamrakhola ...	32 20	0 20	5 20	15 5	116 15	151 4	349 0	197 12	Ditto.	
21	Ali Miyan	Lakhinarayanpur	47 14	0 10	2 0	7 14	58 32	73 8	176 6	92 14	Ditto.	
22	Nur Mian	Maizdi	18 15	0 5	1 37	9 0	138 0	90 0	414 0	324 0	Ditto.	
23	Tuka Mian	Do.	21 15	0 5	1 25	7 29	106 0	76 12	318 0	241 4	Ditto.	
24	Hossain Ali	Amirabad	40 9	0 5	0 30	6 3	40 13	60 12	121 0	60 4	Ditto	
25	Jogesh Chandra Chakravarty.	Alipur	32 32	0 20	3 0	9 18	56 27	94 8	170 7	75 15	Ditto	
26	Dula Miyan Mukhtar	Chamrakhola ...	35 20 / 40 30	0 20	4 0	5 4	40 32	51 0	125 9	74 9	Ditto	Yield from the very tiny tubers.
27	Mohammad Rasad Miyan.	Kassimpur ...	35 25 / 41 34	1¼ 0	4 20	12 9	36 27	122 4	112 11	9 9	Ditto	loss.
28	Akhoy Kumar De ...	Amarpur	20 18	5 0	0 30	6 28	39 28	67 0	119 2	52 2	Ditto	
29	Ambica Charan De ...	Gupta Anka ...	56 28 / 30 27 / 38 28	2 10	43 20	12 29	246 4	127 4	738 5	611 1	Ditto.	
30	Ram Kumar De ...	Ditto ...	25 10	5 0	0 25	9 26	49 10	96 8	147 12	51 4	Ditto.	
31	Tarak Chandra Pal ...	Sataulia	20 20	6 0	1 0	7 8	48 16	72 0	145 3	73 3	Ditto.	
32	Harish Chandra Pal ...	Ditto	21 11	2½ 0	1 15	5 28	115 9	57 0	345 11	288 11	Ditto.	
33	Parbati Charan Kabiraj.	Madhubsing ...	18 12	5 0	3 25	11 8	324 36	112 0	974 12	862 12	Ditto.	
34	Devendra Nath Chakravarty.	Maizdi	30 28 / 20 10 / 10 8	1 0	4 30	17 11	82 4	120 14	246 5	125 7	Nainital.	
35	Tara Prasanna Chakravarty.	Do.	54 10	0 20	1 20	17 37	53 31	125 8	161 6	35 14	Ditto.	
36	Chandra Kumar Sardar.	Do.	34 18	0 20	1 28	15 32	53 37	110 9	161 8	50 15	Ditto.	
37	Akhaya Kumar Sil ...	Do.	18 14	0 5	1 20	9 24	115 8	67 3	345 10	378 7	Ditto.	
38	Gopal Chandra Chakravarty.	Do.	28 14	0 10	1 20	12 13	74 0	86 7	220 0	135 9	Ditto.	

N. B.—The price of seed potato is Rs. 10 for Darjeeling.
Rs. 7-8 for Nainital.
Market rate of potato has been on the average Rs. 3 per maund.

Potato results—Noakhali—*concluded.*

Serial No.	NAME.	Village.	Length and breadth of the plot.	Quantity of seeds.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Price of yield per acre.	Profit or loss per acre.	Variety of seed.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			YDS.	M. S.	M. S.	M. S.	M. S.	RS. A.	RS. A.	RS. A.		
39	Sarat Chandra De ...	Alipur	64 12	1 0	5 0	25 8	126 0	176 7	378 0	201 5	Nainital.	
40	Ram Kumar De ...	Amarpur	20 14	0 10	1 32	7 11	124 17	121 0	375 2	254 2	Ditto.	
41	Mohim Chandra Nag...	Baharpur	34 18	0 20	3 0	15 32	96 32	110 9	290 7	179 14	Ditto.	
42	Ambica Charan De ...	Gupta Anka ...	38 21 50 10 70 35 85 60	0 7-8	67 20	15 10	183 13	106 12	549 14	443 2	Ditto.	
43	Ram Kumar Dey ...	Ditto ...	50 25	0 30	2 35	11 24	44 20	81 8	133 9	52 1	Ditto.	
44	Kamini Dhubi ...	Harinarayanpur...	31 24	0 30	5 0	18 3	118 25	126 9	355 14	228 5	Ditto.	
45	Khirod Chandra Majumdar.	Urzalpur	73 57	2 30	15 0	12 31	69 31	89 7	209 5	119 14	Ditto.	
46	Basanta Kumar De ...	Krisnarampur ...	28 20	0 10	0 25	8 35	22 8	62 2	66 9	4 7	Ditto.	
47	Tarak Chandra Pal ...	Satalia	20 4	0 2	0 15	12 4	90 30	84 12	272 4	187 8	Ditto.	
48	Parbati Chandra Kabiraj.	Madhabsingh ...	14 18	0 5	2 22	9 24	196 36	66 14	590 7	523 9	Ditto.	
49	Karban Ali	Fakirpur	24 18	0 15	2 30	16 32	123 9	117 9	369 11	252 2	Ditto.	
50	Barat Chandra Har ...	Baruitala	12 4	0 2½	0 10	25 8	100 32	176 7	302 7	126 0	Ditto.	

Potato results—Chittagong.

Serial No.	Name.	Village.	Length and breadth of the plot in cubits.	Quantity of seeds.	Variety of seeds.	Yield of the plots.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Money value of the yield per acre.	Profit or loss per acre.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Cubits.	M. S.		M. S.	M. S.	M. S.	RS. A.	RS. A.	RS. A.	
1	Basu Mia ...	Nasirabad ...	672 0	0 20	Nainital	5 20	14 16	129 25	100 8	388 14	288 6	Profit.
2	Nazir Ali ...	Ditto ...	23 19	0 17	Ditto ...	1 15	18 32	60 36	131 9	182 10	51 1	Do.
3	Ali Mia ...	Ditto ...	22½ 18½	0 20	Ditto ...	1 19	23 10	68 24	162 12	206 2	43 6	Do.
4	Ahamed Ali ...	Ditto ...	8 19	0 3	Ditto ...	0 10	9 21	31 33	66 10	96 6	29 12	Do.
5	Ali Mia ...	Ditto ...	26 12	0 6	Ditto ...	0 24	11 20	43 3	80 8	129 4	48 12	Do.
6	Annada Charan Barua.	Pahartali ...	24 36 25 39	0 36	Ditto ...	3 25	9 19	37 25	66 0	113 4	47 4	Do.
7	Mahima Ranjan Barua.	Chittagong ...	40 48	0 30	Ditto ...	4 15	7 22	44 4	52 13	142 5	89 8	Do.
8	Abdul Choban ...	Purangur ...	30 50	0 35	Ditto ...	2 3	8 2	26 30	56 5	80 0	23 11	Do.
9	Moulavi Kazimali Mia.	Bakalia ...	12 21	0 5	Ditto ...	0 10	4 25	9 14	32 14	28 0	3 2	Loss.
10	Nazir Ali ...	Nasirabad ...	23 20	0 17	Darjeeling	1 30	17 31	73 31	177 12	221 7	43 11	Profit.
11	Ali Mia ...	Ditto ...	23½ 17	0 15	Ditto ...	2 5	18 39	107 22	189 12	322 11	132 15	Do.
12	Ahamed Ali ...	Ditto ...	20 19	0 14	Ditto ...	1 10	17 31	63 22	177 12	190 13	13 1	Do.
13	Tofel Ahmed ...	Charia ...	26 12	0 7	Ditto ...	1 10	10 34	77 22	108 8	232 10	124 2	Do.
14	Moulavi Abul Khoir.	Agrabad ...	41 35	0 20	Ditto ...	2 5	6 28	28 26	67 0	85 14	18 14	Sown in a shady place notwithstanding our remonstrations.
15	Har Kishore Barua	Pahartali ...	48 23	0 20	Ditto ...	2 5	8 10	37 10	82 8	111 12	29 4	Some unknown disease affect outturn.
16	Ahmed Hosein ...	Panchalaish ...	20 35	0 10	Ditto ...	4 35	13 30	134 10	137 8	402 12	265 4	Ditto.
17	Annada Charan Barua.	Pahartali ...	20 23	0 5	Ditto ...	0 20	5 10	21 1	52 8	63 1	10 9	Some unknown disease.
18	Chittagong Jail ...	Chittagong ...	13 28 29 25	1 0	Ditto ...	7 10	17 30	128 30	177 8	386 0	208 8	Ditto.
19	Moulavi Kazimali Mia.	Bakalia ...	30 21	0 10	Ditto ...	0 20	7 20	15 14	75 0	46 0	29 0	Loss. unsuitability of the soil.
20	Nur Ahamed Chowdhury.	Sita Kund ...	24½ 21 35 4	0 20	Ditto ...	2 0	11 20	57 6	115 0	171 7	56 7	Profit. Damaged by wild pigs.
21	Abdul Choban ...	Purangar ...	35 55	0 30	Ditto ...	2 25	7 21	26 0	75 4	78 0	2 12	Profit. Destroyed by excessive rain.

N. B.—The price of seed potato is Rs. 10 for Darjeeling.
Ditto Ditto Rs. 7-8 for Nainital.
The Market rate of potato is on the average Rs. 3 per maund.

Potato results—Chittagong—*concluded.*

Serial No.	Name.	Village.	Length and breadth of the plot in cubits.	Quantity of seeds.	Variety of seeds.	Yield of the plots.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Money value of the yield per acre.	Profit or loss per acre.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Cubits.	M. S.		M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.	
22	Mazizar Rahaman	Bazalia ...	12 20	0 7	Darjeeling	0 35	14 3	7 23	98 12	211 12	113 0	Profit. Destroyed by excessive rain.
23	Babu Sanath Chandra Das.	Rahamatgunj	12 5 7 6 10 14	0 15	Ditto ...	1 34	25 34	136 28	250 8	410 2	151 10	Ditto.
24	Umesh Chandra De	Jafornagar ...	20 40	0 30	Ditto ...	4 0	18 6	92 32	181 8	278 6	196 14	Ditto.
25	Ramgati De ...	Bazalia ...	20 13	0 10	Ditto ...	0 12	18 24	22 13	186 0	66 15	119 1	Loss. Destroyed by rain.
26	Perat Ali ...	Ditto ...	27 16	0 10	Ditto ...	0 13	11 6	14 22	111 8	43 9	67 15	Ditto.

N. B.—The price of seed potato is Rs. 10 for Darjeeling.
Ditto Ditto Rs. 7-8 for Nainital.
The Marked rate of potato is on the average Rs. 3 per maund.

Potato results—Comilla.

Serial No.	Name.	Village.	Length and breadth of the plots.	Quantity of seeds.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Money value of the yield per acre.	Profit or loss per acre.	Variety of crops.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Square yards. Area.	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
1	Ishan Chandra Nandi	Poirapara ...	101	0 8	0 8	9 21	23 38	95 4	65 4	30 0	Darjeeling	Loss.
2	Ram Sundar Nandi ...	Ditto ...	115	0 10	0 18	10 20	18 37	75 0	52 0	23 0	Ditto ...	Do.
3	Nagendra Chandra Roy.	Durgapur ...	315	0 20	5 36	7 27	90 26	76 12	249 4	172 8	Ditto ...	Profit.
4	Gobinda Chandra De	Kandirpar ...	59	0 5	0 30	11 37	71 26	119 4	197 0	81 12	Ditto ...	Do.
5	Rajani K. Bhattacharji.	Ditto ...	756	0 45	2 15	7 11	73 27	72 12	202 9	129 13	Ditto ...	Do.
6	Dwijendra M. Chakravarti.	Ditto ...	170	0 5	0 11	3 10	7 33	32 8	21 2	11 6	Ditto ...	Loss.
7	Hasan Ali ...	Dasangacha ..	105	0 10	1 3	10 22	49 22	105 8	136 4	30 12	Ditto ...	Profit.
8	Dwarka N. Banerji ...	Comilla ...	73	0 5	0 7½	8 11	12 17	82 12	34 2	48 10	Ditto ...	Loss.
9	Afzal Hossain, S. D. O.	Feni ...		0 10	0 30	9 17	29 10	94 4	80 7	13 13	Ditto ...	Do.
10	Krishna M. Majumdar	Shilmuri ...	63	0 5	0 32	9 35	60 29	98 12	166 15	67 3	Ditto ...	Profit.
11	Ishan Chandra Majumdar.	Ditto ...	72	0 5	0 30	16 31	100 33	167 12	277 3	109 7	Ditto ...	Do.
12	Behari Ch. Majumdar	Ditto ...	60	0 5	0 12	12 4	24 8	121 0	66 8	54 8	Ditto ...	Loss.
13	Rajani Kumar Chakravarti.	Ditto ...	72	0 5	0 20	8 16	33 25	84 0	92 6	8 6	Ditto ...	Profit.
14	Hasan Ali ...	Ditto ...	66	0 5	0 18	9 15	30 29	93 12	84 8	9 4	Ditto ...	Loss.
15	Rammani Kyachanga	Ditto ...	64	0 5	0 20	9 15	37 33	93 12	104 2	10 6	Ditto ...	Profit.
16	Ram Sundar De ...	Ditto ...	56	0 5	0 23	11 35	49 28	107 12	136 10	28 14	Ditto ...	Do
17	Chandra Mani Dhupi	Shilmuri ...	63	0 5	0 15	9 25	28 33	96 4	79 3	17 1	Ditto ...	Loss.
18	Hassan Ali ...	Lukhipur ...	65	0 5	1 1	9 15	75 13	93 12	203 4	112 8	Ditto ...	Profit.
19	Rahimuddin ...	Ghushya ...	52	0 5	0 7	10 20	16 12	105 0	44 13	60 3	Ditto ...	Loss.
20	Meher Ali ...	Goyam ...	81	0 5	0 20	7 18	29 35	74 8	82 2	7 10	Ditto ...	Profit.
21	Kali Krishna Dhar ...	Dhaneswar ...	64	0 5	0 15	9 15	28 15	93 12	78 0	15 12	Ditto ...	Loss.
22	Gennat Ali ...	Kansannagar ...	432	1 0	2 20	11 5	28 0	111 4	77 0	34 4	Ditto ...	Do.
23	Rahmat Ali ...	Ditto ...	45	0 5	0 15	13 15	40 13	133 12	110 14	21 14	Ditto ...	Do.
24	Ditto	Ditto ...	44	0 5	0 10	13 30	27 20	137 8	75 10	61 14	Ditto ...	Do.
25	Peroj Ali	Ramchandrapur...	112	0 10	0 30	10 32	32 16	108 0	89 1	18 15	Ditto ...	Do.
26	Ansur Ali	Ditto ...	52	0 5	0 17	12 30	39 22	127 8	108 12	18 12	Ditto ...	Do.
27	Rahmat Ali ...	Ditto ...	72	0 7½	0 38	11 35	60 20	118 12	166 6	47 10	Ditto ...	Profit.
28	Piarbaksh ...	Ditto ...	100	0 10	1 10	12 4	60 20	121 0	166 6	45 6	Ditto ...	Do.
29	Sayed Ali ...	Ulta Ramanpur ...	96	0 10	1 0	12 24	50 17	126 0	138 10	12 10	Ditto ...	Do.
30	Satish Chandra Nandi	Laksam ...	64	0 5	0 20	18 36	75 25	189 0	207 15	18 15	Ditto ...	Do.

N. B.—The price of seed potato is Rs. 10 for Darjeeling.
Ditto ditto Rs. 7-8 ,, Nainital.
The price of potato in Comilla varies from Rs. 2 to Rs. 3.

Potato results—Comilla—*continued.*

Serial No.	Name.	Village.	Length and breadth of the plots.	Quantity of seeds.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Money value of the yield per acre.	Profit or loss per acre.	Variety of crops.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Square yards. Acre.	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
31	Md. Faiz	Laksam ...	64	0 5	0 25	9 18	47 11	94 8	130 0	35 8	Darjeeling	Profit.
32	Hasan Ali ...	Barkanta ...	62	0 5	1 5	9 30	87 33	97 8	241 8	144 0	.....	Do.
33	Rajab Ali ...	Belashaw ...	153	0 15	3 10	11 32	102 3	118 0	280 11	162 11	Darjeeling	Do.
34	Golak Chandra De ...	Ditto ...	117	0 10	1 10	10 6	51 29	101 8	142 3	40 11	Ditto	Do.
35	Md. Sakhawat Hossain	Ditto ...	90	0 6¼	0 25	8 14	33 25	83 8	92 7	8 15	Ditto	Do.
36	Ginnat Ali ...	Maharaing ...	70	0 5	0 25	8 25	69 6	86 4	190 2	103 14	Ditto	Do.
37	Afsaraddin ...	Belashaw ...	63	0 6	1 37	11 20	147 36	115 0	404 4	289 4	Ditto	Do.
38	Minsar Ali ...	Ditto ...	114	0 10	1 0	10 25	42 20	106 4	116 14	10 10	Ditto	Do.
39	Ditto ...	Ditto ...	89	0 10	0 25	13 22	33 39	135 8	100 7	35 1	Ditto	Do.
40	Salamat Khan ...	Chandina ...	56	0 5	0 25	10 32	54 1	108 0	140 9	32 9	Ditto	Profit.
41	Azimuddin...	Belashaw ...	180	0 15	3 10	10 3	87 16	100 12	240 5	139 9	Ditto	Do.
42	Mathura M. Mahatya	Do. ...	50	0 5	0 19	11 5	46 9	111 4	127 2	15 14	Ditto	Do.
43	Ram Chandra Nath ...	Do. ...	62	0 5	0 36	9 30	70 10	97 8	193 3	95 11	Ditto	Do.
44	Ram Manikya Nath ...	Bashanta Bazar ...	70	0 5	0 30	8 25	51 30	86 4	142 5	56 1	Ditto	Do.
45	Dina Nath Das ...	Ditto ...	935	1 35	10 25	9 28	55 0	97 0	151 4	54 4	Ditto	Do.
46	Faizuddin	Srimanthapur ...	60	0 5½	1 0	12 30	80 20	127 8	221 6	93 14	Ditto	Do.
47	Asmat Ali	Ditto ...	52	0 5	0 35	11 26	81 22	116 8	224 4	107 12	Ditto	Do
48	Satish Ch. Sen ...	Ditto ...	164	0 22	12 10	16 8	361 20	162 0	994 2	832 2	Ditto	Do.
49	Elahi Baksh	Chandina ...	180	0 17	10 0	11 16	268 35	114 0	749 6	635 6	Ditto	Do.
50	Aftabuddin	Ditto ...	42	0 5	0 30	14 16	86 16	144 0	237 15	93 15	Ditto	Do.
51	Ramjan Ali	Ditto ...	224	0 20	3 0	10 32	64 32	108 0	178 3	70 3	Ditto	Do.
52	Ali Miyan	Ditto ...	96	0 10	2 0	12 24	98 32	126 0	271 11	155 11	Ditto	Do.
53	Ditto	Ditto ...	100	0 10	1 27	12 4	81 3	131 0	223 0	102 0	Ditto	Do.
54	Ansur Ali	Ramchandrapur ...	52	0 5	0 17	12 30	39 22	127 8	98 12	28 12	Ditto	Loss.
55	Maimullah	Ditto ...	100	0 10	0 38	10 35	36 9	108 12	99 9	9 3	Ditto	Do.
56	Easin	Kanchanuagar ...	124	0 10	0 20	9 30	19 21	97 8	53 11	33 13	Ditto	Do.
57	Jahiruddin	Uttar Ramenpur. .	60	0 5	0 16	10 5	32 10	101 4	88 11	12 9	Ditto	Do.
58	Niyaet Ali	Srimanthapur ...	140	0 12½	0 30	10 32	26 0	108 0	71 8	36 8	Ditto	Do.
59	Nawab Ali	Ditto ...	60	0 5	0 30	12 3	17 18	120 12	199 3	1 9	Ditto	Do.
60	Nogendra Ch. Ray ...	Durgapur ...	46	0 5	0 30	13 6	78 17	92 1	217 9	125 8	Nainital	Profit.
61	Dwijendra M. Chakravarti.	Kandirpur ...	70	0 6¼	0 8	9 25	13 33	67 6	67 14	0 8	Ditto	Do.
62	Lalit Chandra Dutta...	Laksham ...	120	0 10	1 10	10 3	50 17	100 12	138 10	37 14	Ditto	Do.
63	Jinnat Ali	Maharang ...	135	0 15	2 7	13 19	87 9	94 8	239 13	145 5	Ditto	Do.
64	Hari Charan Choudhuri.	Chandina ...	40	0 5	0 20	20 7	60 30	141 4	167 0	15 12	Ditto	Do.
65	Akram Ali	Belashaw ...	71	0 7½	0 30	12 31	51 5	89 3	140 9	51 6	Ditto	Do
66	Salamaddin	Ditto ...	93	0 10	1 0	13 0	52 1	91 0	143 1	52 1	Ditto	Do.
67	Golamoddin	Ditto ...	50	0 5	0 25	12 6	60 30	85 0	170 4	85 4	Ditto	Do.
68	Shabaddin	Ditto ...	47	0 5	0 10	12 34	25 29	86 5	170 11	84 6	Ditto	Do.
69	Satish Chandra Sen ...	Srimanthapur ...	284	0 22	7 15	9 15	124 20	65 10	342 6	276 12	Ditto	Do.
70	Mal Khan	Ditto ...	44	0 5	0 20	13 30	55 0	96 4	151 4	55 0	Ditto	Do.
71	Safaruddin	Chandina ...	41	0 5	0 20	14 30	59 0	103 4	162 4	59 0	Ditto	Do.
72	Aftabuddin	Ditto ...	60	0 7½	0 32	15 5	64 21	105 14	179 7	63 9	Ditto	Do.
73	Ram Kumar Pal ...	Baghimara ...	85	0 10	0 20	11 21	23 2	80 10	63 6	17 4	Ditto	Loss.
74	Nishi Kanta Bose ...	Moinamati ...	58	0 7½	0 12	10 15	25 1	72 10	68 13	3 13	Ditto	Do.
75	Dwarka N. Dutta ...	Dilpur ...	408	1 0	0 35	11 34	10 15	82 15	28 8	53 7	Ditto	Do.
76	Rajani K. Bhattacharji.	Kandirpur ...	117	0 15½	0 25	15 10	25 34	106 12	71 1	35 11	Ditto	Do.
77	Kali Charan De ...	Ditto ...	45	0 5	0 3	10 25	8 3	74 6	20 3	54 3	Ditto	Do.
78	Debendra Ch. Majumdar.	Feni ...	90	0 10	0 15	13 5	20 7	91 14	55 8	36 6	Ditto	Do.
79	Ansur Ali	Ramchandrapur ...	36	0 5	0 7½	16 32	25 8	117 5	69 4	48 1	Ditto	Do.
80	Rahamat Ali	Ramchandrapur ...	72	0 8	0 10	13 30	27 20	137 8	74 2	63 6	Ditto	Do.

N. B.—The price of seed potato is Rs. 10 for Darjeeling.
Ditto ditto Rs. 7-8 ,, Nainital.
The price of potato Comilla varies from Rs. 2 to Rs. 3.

Potato results—Comilla—*concluded.*

Serial No.	NAME.	Village.	Length and breadth of the plots.	Quantity of seed.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Money value of the yield per acre.	Profit or loss per acre.	Variety of crops.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Squre yards Area.	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
81	Sukur Mamud	Uttar Raminpur ...	32	0 5	0 7	18 36	26 19	189 0	72 12	116 4	Nainital	Loss.
82	Hasan Ali	Barkanta ...	51	0 5	0 16	12 20	37 39	125 0	104 6	20 10	Ditto ...	Do.
83	Rajab Ali	Belashaw ...	160	0 20	1 30	15 5	52 37	151 4	145 8	5 12	Ditto ...	Do.
84	Aminuddin	Baqur	73	0 7½	0 12	12 0	19 35	84 0	54 10	55 6	Ditto ...	Do.
85	Afsaruddin	Belashaw	46	0 5	0 11	14 5	28 37	94 14	79 8	15 6	Ditto ...	Do.
86	Azimuddin	Ditto	48	0 5	0 12	12 24	30 10	84 4	83 3	1 1	Ditto ...	Do.

N. B.—The price of seed potato is Rs. 10 for Darjeeling.
Di to dit o Rs. 7-8 ,, Nainital.
The price of potato in Comilla varies from Rs. 2 to Rs. 3.

Potato results—Brahmanbaria.

Serial No.	NAME.	Village.	Area of plot.	Quantity of seed.	Yield of plot.	Seed rate per acre.	Yield per acre.	Price of seed per acre.	Money value of yield per acre.	Profit or loss per acre.	Variety of seeds.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Sq. cubits.	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
1	Kali Kumar Sen ...	Urshiura	50	0 5	0 20	48 16	193 24	338 12	581 2	242 6	Darjeeling	Profit.
2	Bishayambar Nama ...	Masaura	180	0 12½	2 15	33 24	255 7	335 4	765 5	430 6	Ditto	Do
3	Gobinda Chandra Nama.	Ditto	25	0 3	0 10	58 3	193 24	580 12	581 0	1 12	Ditto	Do.
4	Sanatan Das	Ramrail	23	0 2½	0 15	52 24	324 26	526 0	977 0	451 0	Ditto	Do.
5	Nagendra Chandra Das.	Ditto	18	0 2½	0 15	67 8	403 13	672 0	1,210 0	538 0	Ditto	Do.
6	Kaku	Jogelsay	60	0 7½	1 3	60 20	346 38	605 0	1,040 12	435 12	Ditto	Do.
7	Ulfat Ali	Rasulabad ...	1,064	2 25	25 0	47 30	454 35	477 8	1,364 10	887 2	Ditto	Do
8	Hinnat Ali	Ditto	420	1 0	5 0	46 3	230 19	460 12	691 6	230 10	Ditto	Do.
9	Tafazul Ali	Ruposdi	640	0 20	6 30	30 10	166 20	605 0	1,996 8	1,391 8	Ditto	Do.
10	Krishna Kumar Sen ...	Urshiura	10	0 1¼	0 4	60 30	193 24	606 0	581 0	25 0	Ditto	Loss
11	Jamini Kumar Barman	Pairtala	35	0 5	0 12	69 5	165 37	691 4	497 8	193 12	Ditto	Do.
12	Sree Dhan	Paitarhata ...	45	0 4	0 12	43 0	129 0	430 0	387 0	13 0	Ditto	Do.
13	Bharat Chandra De ...	Urshiura	21	0 2½	0 5	57 8	115 16	577 0	346 4	230 12	Ditto	Do.
14	Surendra Kishore Dutta.	Golampara ...	30	0 4	0 10	64 21	161 13	451 11	484 0	32 5	Nainital	Profit
15	Hira Nath Barman ...	Fulbaria	125	0 10	0 32	38 28	123 33	270 2	371 12	101 10	Ditto	Do.
16	Rajani Kanta Barman	Kapikanda ...	50	0 3½	0 18	33 35	87 5	233 10	261 6	27 12	Ditto	Do.
17	Kali Kumar Sen ...	Urshiura	50	0 5	0 20	48 16	193 24	338 12	581 2	242 6	Ditto	Do.
18	Krishna Kumar Sen ...	Urshiura	11	0 1¼	0 5	55 0	220 0	385 0	660 0	275 0	Ditto	Do.
19	Pyari Charan De ...	Fulbaria	21	0 1¼	0 3	28 32	74 36	201 9	224 7	22 14	Ditto	Do.
20	Gobinda Chandra Nama.	Masaura	40	0 3	0 15	36 12	181 20	272 4	584 8	312 4	Ditto	Do.
21	Sanatan De	Ramrail	8	0 ½	0 3	30 10	181 20	211 12	544 8	332 12	Ditto	Do.
22	Jogesh Chandra Dhar	Urshiura	95	0 8	1 10	40 30	254 29	285 4	764 3	478 15	Ditto	
23	Surendra Chandra De	Birampur	50	0 5	0 20	48 16	193 24	338 12	580 13	242 1	Ditto	Do.
24	Bancharam Nama ...	Paitar Hata ...	30	0 1	0 3	16 5	48 16	112 14	145 4	32 6	Ditto	Do.
25	Nanda Ram Nama ...	Ditto ...	20	0 2½	0 9	60 20	217 32	423 8	653 7	229 15	Ditto	Do.
26	Nil Madhab Barman	Fulbaria	150	0 8	0 20	25 32	64 21	180 10	193 9	12 15	Ditto	Do.
27	Protap Chandra Sen ...	B. Baria	60	0 2½	0 3	20 6	24 8	141 0	72 10	68 6	Ditto	Loss.
28	Jamini Kumar Barman	Pairtala	60	0 4	0 9	32 10	72 22	225 12	217 10	8 2	Ditto	Do.
29	Bipin Chandra De ...	Medda	40	0 3	0 5	36 12	60 30	253 15	182 4	71 11	Ditto	Do.
30	Joy Dhan De	Senda	25	0 2½	0 5	48 16	96 32	338 13	290 7	48 6	Ditto	Do.
31	Bharat Chandra De ...	Urshiura	12	0 1½	0 2½	50 26	101 12	354 8	303 15	51 9	Ditto	Do.
32	Bhuban Ch. De ...	Birampur	20	0 2½	0 5	60 20	121 0	423 8	363 0	60 3	Ditto	Do.
33	Atul Chandra De ...	Ramrail	17	0 2½	0 5	71 7	142 14	499 2	426 14	62 4	Ditto	Do.

N. B.—The high yield obtained was due to the whole tubers being used as seed.
The price of seed potato is Rs. 10 for Darjeeling.
Ditto ditto Rs. 7-8 for Nainital.
The market rate of potato is about Rs. 3 per maund.

Potato results—Chandpur.

Serial No.	NAME.	Village.	Length and breadth of the plot.	Quantity of seed.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seeds per acre.	Money value of the yield per acre.	Profit or loss per acre.	Variety of seeds.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Cubits.	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
1	Aminuddin	Chinamura ...	48 27	0 20	2 35	7 20	43 5	75 0	86 5	11 5	Darjeelling	Profit.
2	Imanaddin	Do. ...	48 20	0 20	2 20	10 0	50 0	100 0	103 2	3 2	Ditto ...	Do.
3	Asan Kadir Bhuyan ...	Do. ...	56 17	0 20	3 35	10 0	77 20	100 0	155 4	55 4	Ditto ...	Do.
4	Purna Chandra De ...	Do. ...	60 16	0 20	3 35	10 0	77 20	100 0	155 4	55 4	Ditto ...	Do.
5	Kashi Chandra Ray ...	Do. ...	56 17	0 20	5 5	10 0	102 20	100 0	212 8	112 8	Ditto ...	Do.
6	Payari Mohan Ray Chaudhuri.	Do. ...	40 32	0 20	5 15	7 20	80 25	75 0	166 9	89 9	Ditto ...	Do.
7	Umed Ali Pardhania...	Shabarkandi ...	58 36	1 0	8 35	10 0	88 30	100 0	152 11	52 11	Ditto ...	Do.
8	Asad Ali Chaudhuri ...	Fetapur	56 40	1 0	10 3	8 22	86 20	85 11	151 6	65 10	Ditto ...	Do.
9	Asan Karim	Urdamardi ...	40 32	20 0	6 0	7 20	90 0	75 0	157 8	82 8	Ditto ...	Do.
10	Nazar Ali	Chinamara ...	56 17	0 20	7 0	10 0	140 0	100 0	350 0	250 0	Ditto ...	Do.
11	Gafur Ali	Shobandardi ...	114 56	3 0	20 25	9 6	81 35	90 0	108 16	18 16	Ditto ...	Do.
12	Ganni Munshi... ...	Urdamardi ...	120 48	2 0	17 10	6 26	57 20	66 8	100 10	38 2	Ditto ...	Do.
13	Achar Alam Chaudhuri	Damodardi ...	114 56	3 0	31 0	9 0	93 0	90 0	202 12	112 12	Ditto ...	Do.
14	Jatindra Nath Basu ..	Bardia	20 16	0 1½	1 20	2 10	90 0	22 8	157 8	135 0	Ditto ...	Do.
15	Surendra Nath Basu...	Do.	20 16	0 2½	1 25	3 20	97 20	37 8	170 10	133 2	Ditto ...	Do.
16	Alimuddin Sirkar ...	Borachar	16 64	0 20	5 5	10 0	102 20	100 0	179 6	79 6	Ditto ...	Do.
17	Madhar Ali	Charmachua ...	40 32	0 20	2 25	7 20	39 15	52 8	68 14	16 6	Ditto ...	Do.
18	Nur Baksh	Shuban Kandi ...	114 56	3 0	20 0	9 0	60 0	90 0	105 0	15 0	Ditto ...	Do.
19	Tarak Chandra Chandhuri.	Bardia	32 25	0 5	0 10	7 8	45 0	63 12	78 12	15 0	Ditto ...	Do.
20	Amjad Ali Mollah ...	Chinamurah ...	48 27	0 20	2 35	7 20	43 5	75 0	86 5	11 5	Darjeeling	Loss.
21	Raj Kumar Ray Chaudhuri.	Ditto ...	40 40	0 20	2 15	6 0	28 20	60 0	58 0	2 0	Ditto ...	Do.
22	Shashi Kumar Mazumdar.	Nanpur	56 40	1 0	3 25	8 22	22 20	85 11	46 10	29 1	Ditto ...	Do.
23	Mohendra Chandra Mazumdar.	Ditto ...	56 17	0 20	1 10	10 0	35 0	100 0	51 9	48 7	Ditto ...	Do.
24	Dukhai Mollah Majumdar.	Basachar ...	15 64	0 20	1 20	10 0	30 0	70 0	52 8	17 8	Ditto ...	Do.
25	Nani Gopal Nag ...	Sashipara ...	49 32	0 20	8 15	6 0	100 20	42 0	207 8	165 8	Nainital	Profit.
26	Mujafar Ali Miyan ...	Nachna	114 56	2 0	12 0	8 16	36 0	42 0	54 0	12 0	Ditto ...	Do,
27	Nabin Chandra De ...	Digaldi	60 17	0 20	0 26½	10 0	16 10	78 0	38 0	41 9	Ditto ...	Loss.
28	Muhammad Ali Bepari	Damodardi ...	56 40	1 5	5 0	9 25	44 11	87 6	77 11	10 5	Ditto ...	Profit.
29	Fazulla	Bhubankandi ...	20 8	0 5	0 15	3 30	45 0	26 4	78 12	52 8	Ditto ...	Do.
30	Ahid Ali	Ditto ...	30 32	0 22	2 33	11 0	56 0	77 0	98 0	21 0	Ditto ...	Do.
31	Mahimuddin	Dewanpur ...	56 40	1 0	6 15	8 22	54 25	60 0	95 9	35 9	Ditto ...	Do.
32	Alimaddin Sarkar ...	Bisunpur	20 32	0 10	0 20	7 20	60 0	52 8	105 0	52 8	Ditto ...	Do.
33	Mohendra Chandra Lod.	Ditto ...	40 32	20 0	1 20	7 20	22 20	52 8	38 8	14 0	Ditto ...	Loss.
34	Samsur Ali	Nachna ...	56 40	1 0	4 0	8 22	38 11	60 0	59 4	0 12	Ditto ...	Do.
35	Abbas Khan	Raghu Rampur ...	53 28	1 0	2 25	15 0	19 10	105 0	33 11	71 5	Ditto ...	Do.
36	Samid Bepari ...	Charmachua ...	40 32	0 20	0 35	7 20	13 5	52 8	22 15	29 9	Ditto ...	Do.
37	Karim Bakal Sadagar	Ditto ...	56 17	0 20	1 10	10 0	22 20	70 0	38 8	31 8	Ditto ...	Do.
38	Prasanna Kumar Bepari.	Damodardi ...	160 40	2 17	7 20	7 10	22 20	50 14	38 8	12 6	Ditto ...	Do.
39	Haidar Ali	Charmachua ...	58 33	1 0	1 20	10 0	15 0	70 0	22 8	47 8	Ditto ...	Do.
40	Amjad Ali Mollah ...	Ditto ...	64 15	0 20	1 20	10 0	30 0	70 0	52 8	17 8	Ditto ...	Do.
41	Ahsanujjama ...	Ditto ...	64 15	0 20	1 10	10 0	25 0	70 0	43 12	26 4	Ditto ...	Do.
42	Munsur Ali ...	Ditto ...	40 32	0 20	1 20	7 20	22 20	52 8	38 8	14 0	Ditto ...	Do.
43	Ibrahim	Ditto ...	58 33	1 0	2 0	10 0	20 0	70 0	35 0	35 0	Ditto ...	Do.
44	Srish Chandra Mazumdar.	Bardia	56 40	1 12	3 0	11 5	25 28	78 0	45 2	32 14	Ditto ...	Do.
45	Chandra Kanta Mazumdar.	Ditto ...	120 48	2 0	2 10	6 26	7 20	46 8	13 2	33 6	Ditto ...	Do.
46	Zabdar Ali Hazi ...	Charmachua ...	40 32	0 20	0 30	7 20	11 10	52 8	19 11	32 13	Ditto ...	Do.
47	Isan Saha	Ditto ...	40 64	1 10	4 0	9 15	30 0	85 10	52 8	13 2	Ditto ...	Do.
48	Abbas Hazi	Ditto ...	70 32	1 0	2 0	8 22	17 5	60 0	29 15	30 1	Ditto ...	Do.

Potato results—Chandpur—*continued.*

Serial No.	NAME.	Village.	Area of the plot.	Quantity of seeds.	Yield of the plot.	Seed rate per acre.	Yield per acre.	Price of seed per acre.	Money value of the yield per acre.	Profit or loss per acre.	Variety of seeds.	REMARKS.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Cubits.	M. S.	M. S.	M. S.	M. S.	Rs. A.	Rs. A.	Rs. A.		
49	Meher Ali Sarkar ...	.....	30 32	0 20	1 0	10 0	20 0	70 0	35 0	35 0	Nainital...	Loss.
50	Biswambar De ...	Digaldi ...	30 32	0 20	0 25	10 0	12 20	70 0	21 14	48 2	Ditto ..	Do.
51	Akram Ali	Shobankardi ...	56 40	1 5	3 14	9 25	24 28	67 6	43 3	24 3	Ditto ...	Do.
52	Akbar Ali	Mabarkdi ...	64 5	0 10	0 35	15 0	52 20	105 0	91 14	13 2	Ditto ...	Do.
53	Maudar Gazi	Shubandardi ...	48 20	0 22½	1 20	11 10	45 0	78 12	78 5	0 7	Ditto ...	Do.
54	Mainuddin	Mabarkdi ...	20 32	0 10	0 18½	7 20	13 35	52 8	24 4	28 4	Ditto ...	Do.
55	Gafar Ali Hazi ...	Shubankardi ...	70 32	1 0	1 20	8 22	22 20	80 0	39 6	20 10	Ditto ...	Do.
56	Mohammad Eshaq ...	Bishnupur ...	30 22	0 20	0 26	10 0	19 20	70 0	38 2	31 14	Ditto ...	Do.
57	Hamid, Sualku ...	Shahankardi ...	30 16	0 10	0 26	10 0	26 0	70 0	45 8	24 8	Ditto ...	Do.
58	Asgar Ali	Ditto ...	58 33	1 0	1 30	10 0	17 20	70 0	30 10	39 6	Ditto ...	Do.
59	Prasanna De	Ditto ...	120 48	2 0	2 10	6 26	7 20	46 8	13 2	33 6	Ditto ...	Do.
60	Abid Ali	Digaldi ...	20 32	10 0	0 16½	7 20	12 15	52 8	21 10	30 14	Ditto ...	Do.
61	Umed Ali Pradhania...	Shahankardi ...	58 33	0 30	1 22½	7 20	15 25	52 8	27 5	24 3	Ditto ...	Do.
62	Alimaddin	Bishnupur ...	40 32	0 25	1 20	9 15	22 20	65 10	39 6	26 4	Ditto ...	Do.
63	Sahid Ali	Shahankardi ...	58 33	1 0	1 20	10 0	15 0	70 0	26 4	43 12	Ditto ...	Do.
64	Habiullah	Bishnupur ...	40 32	0 25	1 20	9 15	22 20	65 10	39 10	26 0	Ditto ...	Do.
65	Abdul Karim	Ditto ...	20 32	0 10	0 18	7 20	13 20	52 8	23 10	28 14	Ditto ...	Do.
66	Nekbar Ali	Udamaddin ...	30 32	0 20	1 0	10 0	20 0	70 0	35 0	35 0	Ditto ...	Do.
67	Mainuddin	Ditto ...	56 40	1 0	1 3	8 22	9 0	60 0	15 12	44 4	Ditto ...	Do.
68	Azimuddin	Silmandi ...	40 24	0 20	1 5	10 0	22 20	70 0	39 6	30 10	Ditto ...	Do.
69	Mohammad Ali ...	Shahankardi ...	40 24	0 20	0 30	10 0	15 0	70 0	26 4	43 12	Ditto ...	Do.
70	Ajgar Ali Haldar ..	Digaldi ...	58 33	1 0	0 38	10 0	8 20	70 0	14 14	55 2	Ditto ...	Do.
71	Mohar Ali	Damadardi ...	40 32	0 25	1 0	9 15	15 0	65 10	26 4	39 6	Ditto ...	Do.
72	Nazimuddin	Uddamadi ...	30 32	0 10	0 30	7 20	15 0	52 8	18 6	34 2	Ditto ...	Do.
73	Bishambar De ...	Digaldi ...	40 32	0 20	0 26½	7 20	9 37	52 8	18 6	34 2	Ditto ...	Do.
74	Hari Mohan Ray ...	Chandpur ...	30 32	0 20	1 20	10 0	30 0	70 0	52 8	17 8	Ditto ...	Do.
75	Kali Krishna Majumdar.	Bardia ...	58 33	1 0	1 20	10 0	15 0	70 0	26 4	43 12	Ditto ...	Do.
76	Sarat Chandra Som ...	Chandpur ...	30 32	0 20	0 25	10 0	12 20	70 0	21 14	48 2	Ditto ...	Do.
77	Prokash Chandra Sarkar.	Kaziara ...	70 32	1 0	1 20	8 22	13 0	60 0	22 14	37 2	Ditto ...	Do.
78	Bhubaneswar Majumdar.	Bardia ...	58 33	1 0	1 22½	10 0	13 0	70 0	22 14	47 2	Ditto ...	Do.
79	Mundar Ali	Charmachua ...	40 32	0 20	0 35	7 20	13 0	70 0	22 15	29 9	Ditto ...	Do.
80	Amjad Ali Mollah ...	Ditto ...	56 17	0 20	0 26½	10 0	23 10	70 0	40 11	29 5	Ditto ...	Do.
81	Abdul Jalil	Ditto ...	40 32	0 20	0 36½	7 20	13 5	52 8	22 15	29 9	Ditto ...	Do.
82	Jagabandhu Ghosh ...	Bishnupur ...	20 16	0 5	0 5½	7 20	8 4	52 8	22 15	29 9	Ditto ...	Do.
83	Meher Ali	Shahankardi ...	20 32	0 10	0 15	7 20	11 10	52 8	19 11	32 13	Ditto ...	Do.
84	Madbar Ali	Charmachua ...	40 32	0 20	0 36	7 20	13 5	52 8	22 15	29 9	Ditto ...	Do.
85	Alimuddin	Shahankardi ...	20 16	0 5	0 8	7 20	12 0	52 8	21 0	31 8	Ditto ...	Do.
86	Mohendra Chandra Majumdar.	Bardia ...	40 32	0 20	1 20	7 20	22 20	75 0	38 8	36 8	Darjeeling	Do.
87	Hari Mohan Ray ...	Chandpur ...	20 32	0 10	0 15	7 20	11 10	75 0	16 15	58 1	Ditto ...	Do.
88	Narendra Chandra Guha.	Bardia ...	15 64	0 15	1 0	12 0	20 0	100 0	35 0	85 0	Ditto ...	Do.
89	Jabaksha Miyan ...	Nadua ...	40 32	0 20	2 25	7 20	39 10	75 0	68 11	6 5	Ditto ...	Do.
90	Mazaddar Ali Miyan...	Do. ...	40 32	1 0	2 10	7 20	33 30	75 0	49 4	25 12	Ditto ...	Do
91	Achray Anam Chouchuri.	Damadardi ...	120 48	2 0	5 20	6 26	18 16	67 8	30 9	36 15	Ditto ...	Do.

DWIJA DAS DATTA,

Supdt. of Agriculture, Chittagong Division.

ANNUAL REPORT OF THE FIBRE EXPERT TO THE GOVERNMENT OF BENGAL, DACCA, FOR 1914-15.

Manures for Jute on acid red soils in Bengal.

Last year's report described in some detail the experiments which have been in progress in the last four years to investigate the most suitable manures for jute under the respective soil conditions prevailing in different parts of the province. Particular attention was given to the results obtained in acid red soils of which the Dacca Farm is a type and it was shown that the application of lime and bone—in addition of course to the ordinary dressing of cowdung—produced a striking aggregate increase in three years of 13 maunds per acre of jute and 11 maunds per acre of mustard (*rabi* crop), the net value of these increases amounting to no less than Rs. 28 per acre per annum. The following table epitomizes the results :—

East Shooti plots, Dacca Farm.

Treatment.—30 maunds per acre of slaked lime in March 1912.
12 maunds per acre of ground lime in October 1914.

N.B.—Three crops of jute and two of mustard had been reaped since the first application of lime.

3 maunds per acre of bonemeal in March of the years 1912 and 1913 and in October 1914 in addition to an annual dressing, in March, of cowdung or cake equal to 30 lbs. nitrogen per acre.

—	1912.	1913.	1914. Phosphate applied in October with ground lime.	Total increased crop in 3 years.	Aggregate value per acre of increased crop in 3 years.
	Mds. Srs.	Mds. Srs.	Mds. Srs.	Mds. Srs.	Rs. A. P.
(*a*) Increased yield of jute per acre due to lime applied in 1911 and possibly also to phosphate.	4 22	4 0	4 18	13 0	91 0 0
(*b*) Increased yield of mustard due to lime applied in 1911 and 1914 and to effect of phosphate.	5 16	4 2	1 20	11 0	55 0 0
(*c*) Total increased value of jute and mustard reaped in 3 years—1912, 1913 and 1914.	.....	.....	.....	.....	146 0 0
(*d*) Value of lime and bone applied.	.....	.....	.....	.....	59 0 0
Therefore net aggregate return in 3 years.	.....	.....	.....	.....	87 0 0
Approximate increased net return per acre per annum due to application of phosphate and lime.	.....	.....	.....	.....	29 0 0

In the present season several plots of cultivators' land near the Dacca Farm have been treated with lime and bone in order to test the above results on land which has been under ordinary cultivation for some time. It was necessary to do this because the cultivators' custom of mixing all his household ashes with his manure for application to the land might in the course of time materially modify its reaction in regard to lime. On a Government Farm there is of course plenty of cowdung, but the ashes are lacking. The lime has nevertheless produced an obvious effect on each of the cultivators' plots and the results will probably be as striking as those obtained on the Farm.

In this connection it has been thought worth while to commence a series of plots to decide whether smaller quantities of lime applied oftener would not be as effective or more so than the large quantities at present used. This is an important point because, if 10 maunds per acre would produce approximately the same effect in the first year as 30 maunds, it would involve a considerably less immediate outlay on the part of the cultivator even though the dose might have to be repeated in the 2nd and certainly in the 3rd year. The plots so far seem to indicate that the smaller quantity of lime will produce a well-marked effect which is what is desired.

Application of potash.—In order to further investigate the effect of the household ashes, the use of which is, as has already been pointed out, so common among cultivators, a series of plots has been laid out, some of which have received carbonate of potash or carbonate of soda; while others which are to serve as a basis for comparison have not received either. Judging from appearances the potash has had quite an extraordinarily favourable effect which is obviously much greater than that of the soda. Having regard to the latter and also to the fact that the land had already been limed, it would appear that the action of the potash has been partly that of a specific plant food as well as to help in neutralizing the natural acidity of the soil; in any case the cultivator's action is once more well justified. The Government Agricultural Chemist in Assam has found similar conditions in the acid soils of the Brahmaputra valley and the results obtained at Dacca will probably give ample reason for the continuance of the work.

Investigation of the effect of phosphates on jute.—At Dacca phosphates have shewn no very marked effect in producing an increased height in a jute crop; but, on the other hand, there have been indications that jute grown on phosphated land contains a larger percentage of fibre—a result which would tend equally towards increasing the yield of the crop. Results from other districts as far apart as Rangpur on the one hand and Faridpur and Bhairab on the other also indicate markedly-increased yields from the use of phosphates. The matter will continue to receive attention at Dacca and elsewhere.

It will be seen from the above that considerable knowledge is accumulating regarding the manurial requirements of jute. There are still other points which require investigation, such for instance, as catch crop green-manuring and the application of small quantities of soluble manures as top-dressings to the young crop. Work is in progress regarding the former and the latter has already given decidedly favourable indications. But leaving these aside for the moment there can be no doubt that the information already available, when applied by the cultivator on a large scale, will mean a very considerable increase in the amount of fibre to be obtained from the type of land in question.

Influence of co-operative credit in the development of agriculture.—It is possible that some one who is interested enough to read so far may now enquire how the raiyat with his negligibly small capital is to find the ready money to buy implements, expensive artificial manures, etc. Raiyats, who have been convinced by a field demonstration, have asked the same question in the hearing of the writer of this report and have offered to take a manure if they could be allowed to pay for it with interest, if necessary, after the reaping of the crop to which it was to be applied. The last sentence practically describes one phase of co-operative credit, and it is to this movement and its close association with the Agricultural Department that we have to look for a great deal of the hoped-for improvement in agriculture. Already the cultivator is beginning to realise what co-operative credit means to him; there are now 11 small village banks in the immediate neighbourhood of the Dacca Farm through which the members have bought about 120 maunds of bonemeal in the present season, while 500 maunds have been ordered for next season. In the Bhairab district local banks are the means of supplying very large amounts—approaching 2,000 maunds—of suitable potato seeds to their members, and having found the advice of the Department sound in this respect they are enthusiastic to make other trials. There can be little doubt that this attitude will extend and that in the near future the rate of development of agriculture in this province will be more rapid than appears possible at the present time. A great advantage of the co-operative movement is that any item which a local society may pay attention to—an improved seed-supply, for instance—is immediately brought to the notice of all the members of that society. The financial facilities which the bank affords may not come into play at all in such a case; but merely because it is thus enabled to deal collectively with a body of men instead of isolated

individuals and because the interest of one bank will probably attract attention from neighbouring societies, the chances of the rapid introduction of an improvement by the Agricultural Department are enormously improved.

Selection work on jute varieties.—A résumé was given in last year's report of the work which has been done up to date on the selection of the best races of jute (*C. Capsularis*) and it was stated that enough seed of one or two of the pure line cultures thus obtained would be available to sow 1,000 acres. A considerable quantity of this seed has been sold in the present season, but, owing to the restricted demand consequent on the low prices obtained for the fibre, it was not possible to dispose of the whole stock, as would almost certainly have been the case under normal conditions.

The jute races in question have been selected as the best among a very large number of types procured from every jute-growing district and we know that they are good in every sense. It is of course possible, perhaps even probable, that they are actually the best; but in view of the large area over which jute is grown and the very numerous types to be met with in every district, it would be unwise to make such an assumption. Therefore in pursuance of a deliberate policy of arriving ultimately at the best, test plots have been put down throughout the jute-growing districts in order to compare our selected races with the local ones on the spot. If any local races shew themselves superior in any way they will be investigated next year. On the other hand, with a similar object in view, a very large number of small plots—over 700—have been grown on the Dacca Farm from seed sent in from the districts. Thus with all the information which we shall derive—both from the district plots and from the plots on the Dacca Farm—we hope to advance materially this season towards our goal. The path is no easy one as any one who has attempted experimental cultivation under such circumstances will allow; we have made mistakes in some respects already, but we hope to profit by the experience and avoid them in the future. It is of course possible that one race will not do equally well in all jute-growing districts and we may find it necessary to produce a race for each tract. This will almost certainly be the case in the so-called "Desi" districts where *C. Olitorius* is grown; for the climate over West Bengal differs materially from Eastern and Northern Bengal in the comparative scantiness and lateness of its spring rainfall. Such conditions seem to suit *C. Olitorius* much better, as a rule, than *C. Capsularis* which usually makes heavier crops after early sowing. For this reason a separate scheme of selection for *C. Olitorius* is in progress in the "Desi" districts.

In the meantime multiplication of the seed of the races already at our disposal will be continued, and as cultivators in several places have already signified their preference for our seed, there will be a continually-increasing demand. If we ultimately succeed in finding better races, the distribution of their seed will be easy as the critical difficulty of attracting the attention of the cultivator has now been largely got over.

Assistance from mufassal agencies of jute firms.—In last year's report the suggestion was made that the mufassal agencies of the Calcutta jute firms might be able to render great assistance to the Agricultural Department in testing and introducing improvements in the cultivation of jute in their respective districts. Messrs. Sinclair Murray & Co. have, through Mr. Luke, made a commencement in this direction at Naraingunge in the present season by growing a fine crop of jute from departmental seed as a demonstration. The crop has attracted a considerable amount of attention in the district, and arrangements are being made for further work next season. Messrs. Suttie and Blount have offered facilities not only at Naraingunge, but at other agencies belonging to their firm and there is reason to believe that other Calcutta firms are willing to assist in the same way. Such co-operation between large commercial houses in Calcutta and the Department cannot fail to be of very great mutual value and its inauguration is likely to mark an epoch in the development of agricultural investigations in Bengal, not only in regard to jute, but also other important crops grown in the province.

Heart damage.—An investigation into heart damage of baled jute, which has been proceeding for several years, has been concluded as far as *pucca* bales are concerned. The experiments leave no doubt that only jute which is markedly wet is likely to suffer the damage and an approximate maximum moisture limit has been fixed—beyond which damage is bound to take place. A report is being written and will be presented to Government at once.

Water weeds.—A short time ago the Naraingunge Chamber of Commerce approached the Governor of Bengal on the subject of the growth of water weeds

in the *khals* and *bheels* in the neighbourhood of Naraingunge. At the instance of His Excellency an investigation was commenced and the analyses have shown the plants to be surprisingly rich in plant food, so much so indeed as to constitute them a possibly valuable addition to the manurial resources of the province. This information will be given as much publicity as possible, and it should have a considerable influence in persuading the cultivators to clear the narrower water channels at least. In collaboration with the Deputy Director of Agriculture a scheme has been drawn up for exhaustive practical tests on the Dacca Farm with this material.

In the year under review sanction has been given to an increased scale of pay for the Laboratory Assistant, and to a new appointment, viz., that of Field Assistant, on my staff. Babu Nirmal Chandra Basu, M.S.C., has been appointed Laboratory Assistant and Babu Tara Nath Ray fills the Field Assistant's post.

ROBERT S. FINLOW,

Fibre Expert, Government of Bengal, Dacca.

DACCA;

The 10th August 1915.

OFFICE OF THE AGRICULTURAL CHEMIST TO THE GOVERNMENT OF BENGAL.

Brief report of work done by the Agricultural Chemist to the Government of Bengal, Dacca, during the year ending 30th June 1915.

1. *Charge of Office.*—The Agricultural Chemist held charge of the office throughout the year.

2. *Staff.*—During August 1914, Government sanctioned the following additional staff:—

(*a*) A second assistant on Rs. 125—5—175.

(*b*) A bacteriological assistant on Rs. 100—5—150.

Babu Nirmal Chandra Basu, M.Sc., was appointed to the latter post on the afternoon of 7th December 1914, but the post fell vacant on 4th February 1915, when he was appointed first assistant to the Fibre Expert to the Government of Bengal, Dacca.

Babu Gostabehari Pal, M.Sc., was appointed second assistant on probation, on 19th December 1914, and was confirmed in the appointment three months later.

Mr. B. B. Price, first assistant, retired on medical certificate on 22nd May 1915; but for the previous three months very little assistance was obtained from him.

Babu Gostabehari Pal has now been promoted to first assistant.

Babu Indu Bhusan Chatterjee, L.Ag., has been appointed second assistant and Babu Surendra Nath Bose has received the appointment of bacteriological assistant, but has not yet joined.

3. *Leave.*—The Agricultural Chemist has taken no leave in the year under report.

4. *Tours.*—The following tours were undertaken:—

July.—To Calcutta. To talk over sugar matters with the Manager, Cossipore Sugar Works and inspect some of his experimental sugarcane at Belur, and also to interview the Manager of the Tarpur Sugar Works.

Also some time was spent in looking up Patent Literature.

August.—To Calcutta. By request of the Revenue Secretary to discuss the sugar situation arising out of the outbreak of war.

September to October.—To visit the date-sugar-producing districts with the idea of trying to encourage the production of palm-sugar. From 10th to 22nd September, the following places were visited, every endeavour being made to meet all the touring officers of Khulna, Jessore, 24-Parganas, Howrah, Nadia and Faridpur districts. A note on the possibilities of increased production in each district was submitted to the Director of Agriculture, Bengal, Calcutta.

From 9th to 13th October Bakarganj was visited.

It might be remarked that the tour apparently had a good effect since the Collector of Barisal subsequently informed me that date-sugar production had so much increased in his district that the price of *gur* instead of rising as in other parts of India was actually lower than in previous years.

December.—To Munshiganj. To take samples of the water-supply for examination.

To Chinsura. Chinsura was also visited to select sites for experimental sugarcane plots.

To Belur. Belur was again visited to see the experimental sugarcane there.

January.—To Chittagong. To take soil samples and inspect farm.

To Cox's Bazar. To investigate the possibilities of the *nipa* palm (*nipa fruticans*) for the production of palm-sugar. Samples of the rice and ferment used in making rice beer or *pachwai* were also obtained.

February.—To Chinsura and Belur with the Imperial Sugarcane Expert to shew him the sugarcane work there.

To Rangpur to attend Agricultural Conference and also to tour and take soil samples in the tobacco tract of that district.

To Chinsura to superintend the sowing of sugarcane plots.

March.—To Jessore district to gather information as to whether more palm-sugar work was being made this year; also to obtain various information as to prices.

To Chinsura to inspect sowings of sugarcane.

March—April.—To Coimbatore, Madras Presidency, to examine the students of the Agricultural College there. A tour was made of the palm sugar producing districts of Madras, and visits were paid to various factories. A report on this tour with suggestions for Bengal was furnished to the Director of Agriculture, Bengal.

In all the Agricultural Chemist was on tour for 97 days during the year.

5. *Work performed.*—Owing to the changes in my staff the continuity of various pieces of work has been interfered with. During this last month of the year Mansfield's Oil Gas Plant is being installed. This is expected to give greater facilities for work.

I—Sugarcane.

The work under this head may be divided as follows :—

A—*Continuation of the trial of promising varieties.*—Reference to previous annual reports will shew that, on the Dacca Farm, we have experimented with the following five varieties—Dacca Gandari, Yellow Tanna, Striped Tanna, B147 and B208. Up to date we have found that B147 is the most promising of these. It has a richer juice and yields far more heavily than the local Dacca Gandari. B208 is easily the richest cane in sugar, but it would seem to be rather too soft and delicate for Dacca. It requires to be fenced in, since jackals and pigs are much attracted by it.

Striped Tanna grows luxuriantly, but it has a very impure juice and the thick canes give much trouble in crushing. It has therefore been discarded in the present year's experiments.

Yellow Tanna, though not very rich, is very hardy, and a good yielder and it is still being kept under trial.

No work was done in this laboratory on the canes harvested during the year. These canes included the five varieties above named and also the ratoon canes from the previous year's crop of the same varieties. The canes were very badly diseased, being badly attacked both with red rot and stem borer.

During last March duplicate plots of 1-10th acre each of the following varieties were sown :—

1. Sarethi of Aligarh.
2. Yellow Tanna.
3. Barbadoes 147.
4. Barbadoes 208.
5. Dacca Gandari.

Sarethi of Aligarh is a thin cane which yields remarkably well in the United Provinces. It is being tried to see how such a cane does in these parts. At the time of writing (June 23rd) Sarethi is doing extremely well. B208 appears, however, to be making the best growth, which the writer did not expect. During the recent spell of wet weather B147, which unexpectedly had been quite poor, has been making some headway. Dacca Gandari and Yellow Tanna seem to be doing fairly well.

Our present impressions are —

(*a*) That B147 will turn out a very good cane for introduction into Bengal. It has a richer juice than Dacca Gandari and in our experience

yields more heavily. B147, however, is not suitable for chewing purposes, for which Dacca Gandari is grown, but makes excellent *gur*.

(*b*) That B208, if carefully protected from animals, should produce a large crop of excellent chewing cane, though it is difficult to get the cultivator to admit that it is as sweet and soft as their own Dacca Gandari.

It should be remarked here that one must not depend entirely upon one variety. One must always have other varieties in reserve. With this end in view we are growing this year at Dacca on a small scale the following varieties :—

1. Red Mauritius—a thick cane which does well in South India.
2. Barbadoes 3412, which has also done well in South India.
3. Java from Coimbatore.
4. Java No. 247 from Coimbatore and from the Central Provinces.
5. Java No. 36 from the Central Provinces.
6. Java No. 33A from the United Provinces.
7. Sunnabili from the Central Provinces. This is a thin cane which it is hoped may turn out to be a much better cane than the commonly-grown thin cane Khari.

Disease.—Java 36 and Sarethi have been much attacked by Smut (Ustilago sacchari). Otherwise the canes are fairly healthy.

B—Experiments on drainage of sugarcane.—At Chinsura much land is very low lying and during certain portions of the year is liable to water-logging. During dry periods of the year the canes would probably be much better for irrigation. Four experimental areas have been laid out on the Chinsura Farm.

Two of these areas have been drained with open drains on the Java system. The drains can be filled with water during the dry season and during wet weather they drain off the water.

The remaining two areas have the same varieties of cane growing on them, but they are being grown on the ordinary country system.

The experiment has been largely spoilt, owing to the hopeless germination. The Farm Superintendent puts this down to want of water at sowing time.

Sarethi from Aligarh promises to give a good crop on each plot, but the cane on all the other plots is very poor.

It is as yet too early to say whether the drained plots are likely to turn out better than the undrained ones since the rains at Chinsura have only just commenced.

C—Collection of Bengal varieties.—With the idea of making a survey of the canes growing in Bengal, a beginning was made last year in the collection of these varieties at Dacca. The Dacca Farm soil is not good soil for this work, but the varieties must be grown under constant supervision. Last year 14 varieties were grown.

We again have these same varieties growing this year and in addition have 44 other varieties from the districts of Dacca, Mymensingh, Barisal, Faridpur, Burdwan, Murshidabad, Rajshahi and 24-Parganas.

When the canes are classified we shall doubtless find that canes called by different names in different districts are really the same variety.

Most of these varieties are making good growth.

It is hoped gradually to collect and study all the varieties of cane grown in Bengal.

II—Palm-sugar Investigations.

A—*Field work*.—The seeds sown on the Dacca Farm and mentioned in last year's report germinated fairly well and the young plants are well established.

Government sanctioned the purchase of a small apparatus from America such as is used there for the production of sugar from maple tree sap. Great attention has been paid to improvements in this kind of apparatus in the past few years in America. It was expected that the plant would arrive in time for work in the field last cold weather, but owing to a mistake it was kept back in New York. It is now on its way and it is to be tried next cold weather in Jessore district. It is felt that the only real way to improve the palm-sugar industry is by some form of co-operation. The plant ordered

should deal rapidly with the juice of a large number of trees. Metal collecting buckets for the juice are also being imported.

Further, large gathering tanks are to be tried. These will be filled with juice in distant gardens and transported on a cart or in a boat to the sugar-making house. This should save much labour in transportation.

Another experiment to be tried is the use of lime in the pots in order to prevent the fermentation of the juice. This seems to be very successful in Madras.

Marketing the date gur.—The date *gur* being semi liquid is difficult to cart since it has to be taken in earthen pots. To get out the *gur* the pots are broken and this means expense. To make matters worse, pieces of earthenware get into the filter bags of refineries and cut the cloth and are hence a source of much trouble. It is proposed to attempt to make a more solid product such as the jaggery which is made in Madras. In Madras the jaggery is sent about in gunny bags and it is proposed to try the same system in Bengal. The gunny bags are inexpensive and can be used again many times. This should mean a considerable saving in expenditure on earthen pots.

B—*Laboratory work.*—This is being undertaken in order to elucidate the mechanism of the production of sugar in palm-trees.

Work on Phœnyx sylvestris—The wild-date palm.—The juice of several trees has been submitted to a thorough examination for enzymes, capable of producing changes in starch, various sugars and proteids. No trace of any enzyme has hitherto been found in the juice. This would point to the sugars being produced in the palm tissue by extra cellular enzymes.

Work on Oreodoxa regia—The royal palm.—This is a palm which produces flowering stalks from its main stem. Flowering stems of different ages from the same tree have been removed and a full examination is being made into the amount and kind of carbohydrates present in the flowers of different ages. Enzymic tests have also been carried out.

C—*Work on Nipa palm (Nipa fruticans).*—This is a swamp stemless palm growing in various parts of the Sundarbans and at Cox's bazar. Gibbs in the Phillippine Islands has called attention to the possibilities of this palm as a sugar producer and he seems convinced that sugar production from these palms would be a great success commercially. During a visit to Cox's Bazar a number of these palms were seen. The juice was there being used for the production of alcohol. I examined the juice of a number of trees on the spot and brought four samples of preserved juice back with me to Dacca. As the juice was being used for alcohol production no special precautions were being taken to keep it clean. It is distinctly richer than date-palm juice, the canesugar running from 11¼ to 15½ per cent. and the reducing sugar from 0·30 to 1 per cent. in the samples I examined.

At the same time the yield of juice per tree is very small, much smaller than from a date-palm tree and the trees only flower every second year. I do not anticipate much of a future for the *nipa* palm from the sugar-making point of view in India.

III—Soil Survey.

This work mentioned last year has made less progress than was hoped owing to the loss of the 1st assistant.

All analyses which have so far been made of Bengal soils, however, have been collected together. As the work progresses we are finding that by far the larger part of Bengal is extremely deficient in lime. On these areas we are quite safe in recommending liming and the application of bone-meal. Some of the Bengal soils moreover contain a high proportion of magnesia to lime.

During the coming year it is hoped to carry out a detailed examination of the Rangpur tobacco soil tract.

IV—Miscellaneous Investigations.

A—*Enzymes in seeds.*—In last year's report reference was made to the discovery in the sword bean of urease, a ferment converts urea to ammonium carbonate. Work has been done with the object of discovering the significance of the presence of this enzyme, but the experiments are to be repeated before publication.

B—*Pachwai of Rice Beer.*—Samples of the rice and of the ferment used in the making of the beer were obtained personally at Cox's Bazar. Two

distinct types of yeast have been obtained in pure culture from the ferment—one a rapid membrane former, the other a bottom yeast.

C—*Starch estimation.*—A good deal of work has been done on a modification of Davis's method for estimating starch in plant materials.

D.—*A start has been made on the biological analysis of the soils of plots on the Dacca Farm, which have received various kinds of manuring.*

V—Routine Work.

Various samples of soils, manures and feeding stuffs have been received for analysis. Most of these came from Government farms.

H. E. Annett,
Agricultural Chemist to the Government of Bengal, Dacca.

REPORT OF THE ECONOMIC BOTANIST FOR THE YEAR ENDING 30TH JUNE 1915.

The Economic Botanist continued to hold charge of the office throughout the year under review. There were no changes or additions to the staff.

Tours.—Sixty-four days were spent on tour, chiefly in visits to the various farms in connection with work in progress, and to Noakhali, Tippera and Bikrampur in connection with experiments in checking Ufra paddy disease. Three visits were paid to the Karimganj Farm in Sylhet to inspect the paddy work there. In May 1915 a visit was paid to Kalimpong and neighbourhood to draw up a scheme for fruit growing in the Darjeeling district.

Work.—The following are the main items of work in progress during the year :—

(1) *Rice.*—The work on rice has been continued on the lines indicated in previous reports. The survey of the varieties of transplanted *aman* paddies of East Bengal is almost completed, and several types are now being tested on a practical scale. This work has resulted in the selection of at least one variety which promises to prove superior to any of the local varieties grown round Dacca. During the year a thorough test of the variety was made both on the farm and in the neighbourhood on cultivators' fields. The results are given below :—

	Area.			Average yield per acre.		
I.—Farm—	B.	K.	Ch.	Mds.	Srs.	
(*a*) Darbari Ravine ...	10	12	13	33	5	(2,650 lbs.)
(*b*) South Ravine ...	3	19	5	31	9	(2,498 „)
(*c*) Rakhali Ravine ...	1	5	0	21	32	(1,745 „)
(*d*) Office Ravine ...	1	8	0	35	21	(2,842 „)
Total ...	17	5	2	30	17	(2,434 „)

or 5 acres 15 cottahs.

that is, an area of 5 acres 15 cottahs yielded at the average rate of 30 maunds 17 seers per acre, which was a record for the Dacca Farm. It may be noted that the yields per acre of Darbari and South Ravine in the two previous years (1912-13 and 1913-14) were Darbari, 18 maunds 38 seers and 16 maunds 27 seers ; South Ravine, 24 maunds 1 seer and 16 maunds 17 seers.

II.—Cultivators' plots—

Variety.	Area.	Actual outturn.	Outturn per acre.
	Sq ft.	Mds. Srs.	Mds. Srs.
(1) Local Lohadung ...	5,994	2 27	19 17
(2) Indursail selected ...	5,482	4 23	36 14
(3) Local Kartiksinni ...	9,619	4 20	20 15
(4) Indursail selected ...	10,692	7 25	31 2
(5) Local Malloty ...	18,451	8 0	18 35
(6) Indursail selected ...	18,451	11 0	25 38*

* Was a second crop after *aus* paddy.

As regards cooking qualities, the cultivators concerned state it is quite as good as their own local favourite, Malloty, and all admit it is a much heavier yielder. That their interest in this paddy appears genuine, is evidenced by the fact that members of various local co-operative banks have offered to buy the whole stock available for seed, and a large number of demonstration plots are being grown this season. Unfortunately the trials of the paddy at Chinsurah, Rajshahi and Rangpur yielded no result as the paddy crop on these farms last year was a complete failure owing to the short rainfall.

On the more purely scientific side, work on crossing and inheritance of characters has been continued, and some interesting results obtained.

Seed-rate and specific gravity selection experiments.—The experiment of the previous year was repeated. Six plots each $\frac{1}{12}$th acre sown with unselected seed at the local seed rate yielded 10 maunds 32 seers against 9 maunds 19 seers for six selected plots, the seed rates being respectively 45 seers per acre and 33 seers per acre; while six plots sown with light seed rejected from the selected plots yielded 8 maunds 13 seers, the seed rate being 11 seers per acre. Thus while the unselected plots yielded most, the same quantity of seed spread over double the area yielded 17 maunds 22 seers against 10 maunds 32 seers. Taken in conjunction with the previous year's results, these figures, while they leave the advantage in favour of heavy seed somewhat doubtful, prove beyond doubt the great waste of seed at sowing time owing to the high seed rate ordinarily in practice.

Ufra disease.—The experiments to find some means of checking Ufra disease were continued at Chaumahuai and Bikrampur, while a commencement was made with the Imperial Mycologist's experiment at Comilla. The former experiments simply consist of burning thoroughly the stubble left in the field after harvest on an area ordinarily badly infected with *Ufra* and ploughing immediately and continuing to do so at intervals up till sowing time. At Bikrampur, for the second year, no *Ufra* occurred on the experimental plot, while at Chaumahuni one plot was slightly attacked. The Comilla experiment is under the control of the Imperial Mycologist and will be dealt with by him. It is hoped it may also be found possible to combat the pest by growing immune varieties. It is doubtful if there is any variety directly immune, but some varieties seem to escape owing to their ripening early in the season before the attack becomes virulent. One such, at least, is known, and work was started during the year under review to test the extent of its immunity, while a search for other such varieties was also commenced.

Other work.—The work on local pulses, oil-seeds and chillies was continued, and it is proposed to start testing on a practical scale several selected types of each of these crops this season.

Fruit.—The fruit experiments at Dacca were continued. No new varieties were added during the year, and the work done was mostly of a routine nature. Most of the trees in the area are now in bearing. In May 1915 a visit was paid to Kalimpong to draw up a scheme for fruit growing in the Darjeeling district.

Mycology and Entomology.—The Mycological Collector and Entomological Collector continued to work under the Economic Botanist. A separate report on their work is submitted.

G. P. HECTOR,

Economic Botanist, Bengal.

REPORT OF THE IMPERIAL ENTOMOLOGIST.

Memorandum of Insect-pests reported from Bengal during the Agricultural year 1914-15.

1. Letter dated 2nd July 1914, from Messrs. Anderson, Wright & Co., Calcutta, forwarding specimens of a beetle grub received from Mr. J. C. Higgins, Vice-President of the Manipur Durbar. The insects were reported to be doing serious damage to a mulberry plantation of the Durbar. These proved on examination to be the grubs of a Cerambycid beetle (*Coelosterna* sp.). Necessary instructions for checking further damage were issued.

2. Letter dated 22nd July 1914, from J. Malcolm, Esq., Ramnugger Concern, Plassey P. O., Nadia district, forwarding specimens of caterpillars which were destroying his Jute crop. These were found to be the examples of Jute Semi-looper (*Cosmophila sabulifera*). Some remedial measures for checking the pest were recommended.

3. Letter dated 24th July 1914, from Kaviraj Durga Prasad Sen, Calcutta, reporting that fruit and flower plants in his garden at Deogarh were being destroyed by white ants. Necessary instructions for getting rid of the pest were issued to him.

4. Letter dated 22nd October 1914, from the Superintendent, Jalpaiguri Jail, forwarding specimens of two kinds of insects destroying cauliflowers in the Jail gardens and asking for some means of protection against them. The insects responsible for the damage were the large brown cricket (*Brachytrypes portentuosus*) and probably the greasy cutworm (*Agrotis ypsilon*). Some practical suggestions for controlling both the pests were made.

5. Letter dated 10th December 1914, from the Superintendent, Jalpaiguri Jail, forwarding sample of stored rice damaged by insects for examination and suggestion of remedial measures, to keep the stored grains free from the attacks of these pests. *Calandra oryzæ* was found to be the chief culprit, and suitable measures for the protection of the stored grains were recommended.

6. Letter dated 21st December 1914, from Messrs. T. E. Bevan & Co., Calcutta, forwarding a specimen of a "borer-worm" which often occurs in imported pianos. The insect was found to be the grub of a Cerambycid beetle, and to check its further ravages some suitable methods were advised.

7. Letter dated 20th May 1915, from E. G. Macleod, Esq., Kotchandpur, Jessore, forwarding an affected branch from a "Litchi" tree for examination and suggestion of remedial measures to check further damage. The leaves were found to have been infested with a microscopic mite (*Eriophyes*) for the eradication of which certain methods were recommended.

Apart from the above, all the necessary assistance was rendered from here to the Provincial Agricultural Department in the way of identifying insects, preparing and supplying the magic lantern slides of injurious, beneficial and useful insects.

T. B. FLETCHER,

Imperial Entomologist.

REPORT OF THE IMPERIAL MYCOLOGIST.

I HAVE the honour to submit a report on the mycological work done for the Province of Bengal during the year 1914-15 :—

(1) *Ufra disease.*—This constituted by far the most important investigation. The experiment at Comilla unfortunately was not a success and is

being repeated this year. A smaller experiment at Pusa, however, indicated that firing the surface of the soil was a provocative on a small area.

(2) *Betel vine.*—A disease of betel vine, which occurs in the vicinity of Bogra, was found due to a species of Rhizootonia—R.destruens Tass. This disease was investigated and the results are contained in a memoir which is now in the press. The anthracnose of betel vine, which occurs near Shillong, is a different disease the cause of which is obscure.

(3) *Potato.*—The potato blight in India was studied and the results published in a memoir of the Department.

(4) *Areca Palm.*—A disease of this palm occurs in Khulna which was suspected to be due to the attack of Fomes lucidus. This has not so far been confirmed.

F. J. F. SHAW,

Offg. Imperial Mycologist.

ENTOMOLOGICAL REPORT FOR THE YEAR ENDING 30TH JUNE 1915.

DURING the year the Entomological Collector was on leave for two months. He visited the following places in connection with outbreaks of insectpests :—

July.—Uluberia (Howrah).—To investigate the jute semilooper (çosmophila sabulifera, loc. 'Ghora pokā') and demonstrate remedial measures.

August.—Bongong (Jessore).—To investigate the jute semilooper (çosmophila sabulifera, loc. 'Ghora pokā') and demonstrate remedial measures.

Uttarpara (Hooghly).—To investigate the palm-leaf caterpillar (Nephantis serinopa) and demonstrate remedial measures.

Meherpur.—To investigate jute semilooper (çosmophila sabulifera, loc 'Ghora pokā').

September.—Bankura.—To investigate 'Bhapu' disease of paddy.

Uttarpara.—To observe the results of treatment of cocoanut trees attacked by the palm-leaf caterpillar (Nephantis serinopa).

October.—Diamond Harbour.—To investigate a suspected paddy disease.

Midnapore.—To investigate a suspected paddy disease.

November.—Naogaon.—To spray ganja attacked by red spider (Tetranychus sp.).

24-Parganas, Hooghly and Midnapore.—To investigate a suspected paddy disease with the Mycological Collector.

Chanchal (Malda).—To investigate whiteant (Termes sp., loc. 'Ui') on wheat.

March.—Cox's Bazar.—To investigate the palm beetle (Oryctes rhinoceros, loc. 'Bhomra poka').

May.—Borarchar (Dacca).—To investigate the rice stem-borer (Schœnobius bipunctifer, loc. 'Majra') and demonstrate remedial measures.

Muktagacha (Mymensingh).—To investigate the Litchi mite (Phytoptus sp.) and demonstrate remedial measures.

June.—Chaumuhani (Noakhali).—To investigate rice Hispa (Hispa ænesceus, loc. 'Menā pokā') and to examine Ufra experimental paddy plots.

Govindapur (Laksam).—To examine Ufra experimental paddy plots.

Vikrampur (Dacca).—To investigate a suspected paddy disease.

The chief items of work are noted below :—

"Bhapu" disease of paddy.—The investigation of the disease was continued and it was found to be due to the attack of a fly maggott (most probably Cecidomyia oryzœ). The pest has been described in the Bengali Year Book.

A suspected paddy disease.—This disease, which did serious damage to transplanted paddy in Presidency and Burdwan Divisions, was investigated with the Mycological Collector and a preliminary report was submitted.

The palm-leaf caterpillar (Nephantis serinopa).—This new pest, which did considerable damage to the palm trees in Western Bengal, was studied and a leaflet was published.

The mango weevil.—Experiments started to check the mango weevil by kerosine treatment were continued and the results seem promising.

Red spider on ganja.—Spraying demonstrations of Vermisapon special K. for red spider on ganja at Naogaon were continued.

Observation and treatment of the crop pests on the Dacca Farm.—The most important pests observed on the farm were the following :—

Rice stem-borer (Schœnobius bipunctifer, loc. ' Majra ').

Rice case worm (Nymphula depunctalis, loc. ' Chonga pokā ').

Orange-banded blister beetle (Mylabris pustulata).

Cotton leaf roller (Sylepta derogata).

Mango shoot borer (Alcides sp.).

Mango hairy caterpillar (Cricula trifenestrata, loc. ' Beecha pokā ').

The Litchi mite (Phytoptus sp.).

Red-spotted scale (Aspidiotus sp.).

Large brown cricket (Brachytrypes achatinus, loc. ' Urchunga ').

Jute semilooper (Cosmophila sabulifera, loc ' Chhat pokā ').

Jute stem weevil (Apion sp.).

Behar hairy caterpillar (Diacrisia obliqua, loc. ' Beechha pokā ').

Moth borer (Chilo sp., loc. ' Majra ').

White moth borer (Scirpophaga auriflua, loc. ' Sada majra ').

Pulse beetle (Bruchus sp.).

To check the ravages of the above insects spraying, hand-picking, fumigation, etc., were resorted to where possible.

Lantern slides.—A set of lantern slides illustrating spraying, bagging, fumigation, etc., was prepared to be shown in exhibitions.

Entomological show-cases.—Show-cases of important insect pests were sent to Bandarkhola (Faridpur), Suri and Feni Exhibitions.

Parcels.—A number of parcels of specimens of insects were received and reported on.

Identification.—A few species of insects were sent to Pusa for identification.

Publications.—The following leaflets were published in English and Bengali :—

(1) The Palm Leaf Caterpillar.

(2) The Palm Beetle.

P. C. Sen,

The 9th July 1915. *Entomological Collector.*

MYCOLOGICAL REPORT FOR THE YEAR ENDING THE 30TH JUNE 1915.

I was on privilege leave for 38 days. I spent 145 days on tour during the year under report and visited the following places in connection with outbreaks of fungus pests :—

Ranaghat—to investigate cocoanut palm disease.

Bogra—to investigate betel vine (pán) disease.

Uttarpara (Hooghly)—to investigate palm disease.

Bankura—to investigate with the Entomological Collector the *bhapu* disease of paddy.

24-Parganas, Hooghly and Midnapore with the Entomological Collector to investigate a suspected paddy disease.

Rangpur and Mymensingh—to investigate potato disease.

Report on the investigation of each of these diseases was written and submitted to the Director of Agriculture. Remedial measures against those pests, where possible, were suggested to the raiyats.

I also attended the Feni (Noakhali), Banderkhola (Faridpur) and the potato exhibitions at Harinarayanpur (Noakhali) where specimens of more important fungoid parasites were exhibited, life history explained and instructions given to the visitors as to the best method of checking them.

I devoted most of my time supervising experiments in Noakhali, Laksam and Bikrampur to check ufra, dak or thoramara (eelworm) disease of paddy and also visited Comilla to assist in an experiment started there under the direction of the Imperial Mycologist. During the year under report a survey was also started of the ufra or dak infected tracts of the Dacca district. The object of this is to obtain accurate information as to the exact area of country over which the disease occurs, in order to see whether it shows any tendency to spread and in what direction, and to gather information as to the varieties of paddy grown, the method of cultivation, and the general agricultural conditions.

Observation of certain fungus diseases on the Dacca farm crops was also taken and necessary remedial measures were tried.

AMRITA LAL SOM,

Mycological Collector.

THE REPORT OF THE DEPUTY DIRECTOR OF FISHERIES FOR THE YEAR ENDING 30TH JUNE 1915.

This report summarises the work attempted in Bengal and Bihar and Orissa.

Tours.—I was away from Calcutta on tour on 120 days, and fishery surveys were made in the launch at the following places :—

Bengal.

Chagladah.	Diamond Harbour.	Khulna.
Charghatta.	Geonkhally.	Mud Point.
Daulatpur.	Ghatbhog.	Nurpur.

Nynan.

Inspections were made of the fisheries at Rangpur, Dinajpur, Berhampur and in the vicinity of Konnagar. Panchkura was visited with the object of ascertaining whether a suitable site for carp-culture could be obtained there.

Bihar and Orissa.

Arrah.	Cuttack.	Dinapur.
Bankipur.	Delabagh.	Sasaram.
Buxar.	Dehri-on-Sone.	Sone East Bank.

These places were inspected in connection with the establishment and supervision of carp and hilsa hatcheries. We now have carp and hilsa hatcheries both at Cuttack and Buxar. There are also a series of experimental ponds for predatory fish in Bankipur and in Calcutta. Fishery investigations were conducted at Monghyr, and an inspection of the tank at Sambalpur was also made.

Twenty-two days were spent in the Madras Presidency. I inspected the canning factories at Calicut and Beypur, the fish-curing yard at Tanur, the trout hatcheries in the Nilgiri Hills and the sal and carp hatcheries at Kurnool. The chank fisheries at Tuticorin were also visited.

On another occasion I proceeded to Madras in order to attend the second Annual Indian Science Congress.

Seventeen days were also spent on the Chilka Lake with Dr. Annandale, Superintendent of the Indian Museum. On this occasion we were able to secure a launch and to conduct trawling operations over the main channel of the Lake.

Reports of my investigations at every place named have been sent to the Director of Agriculture of each province.

Mr. B. Das, Superintendent of Fisheries, was on tour for 155 days and visited the following places :—

Bengal.

Amta.	Champadanga.	Gopalganj.
Ashuganj.	Chandpur.	Khulna.
Baliakandi.	Dacca.	Kola Beel.
Banjetia.	Damri.	Madaripur.
Barisal.	Damukdea.	Mirkadim.
Basukhally.	Daulatpur.	Narayanganj.
Berhampur.	Falakata.	Panchkura.
Bhandardah Beel.	Ghatbhog.	Pangsa.
Chagladah Beel.	Goalundo.	Saraghat.

Bihar and Orissa.

Bihta.	Jagula.	Kanika.
Dhamra.	Kalibhaug Diara.	Kantiakhai

Khagra (Kissenganj).

The work done by this officer at the above places included the following :—

Surveys of the mud-turtle and mussel-fisheries; distribution of carp fry; attending Agricultural Exhibitions; selecting sites for and conducting fish-cultural operations; general fishery surveys and propaganda work.

Mr. S. M. Mohsin, Superintendent of Fisheries, was on tour for 165 days and visited the following places :—

Bengal.

Amta.	Champadanga.	Ghatal.	Kolaghat.
Burdwan.	Faridpur.	Khulna.	

Bihar and Orissa.

Arrah.	Cuttack.	Kanika.	Muzaffarpur.
Bankipur.	Chaibassa.	Kantiakhai.	Ranchi.
Buxar.	Dhamra.	Monghyr.	Sahibganj.

Sambalpur.

Visits to the places named in Bengal by this officer were made in connection with the distribution of carp-fry and the selection of a site for a hilsa hatchery. This officer also made fishery surveys at Dhamra and vicinity, and at Sahebganj and Barh. He also attended the Agricultural Exhibitions at Chaibassa, Muzaffarpur, Monghyr, Ranchi and Sambalpur, and assisted in the general distribution of carp-fry. In addition, Mr. Mohsin erected hilsa hatcheries at Cuttack and Buxar and conducted experimental hatching operations there under my supervision.

Copies of the fortnightly diaries, and of the inspection reports of the above officers, have, in every case, been submitted to the Director of Agriculture of each province.

Babu Surendra Nath Ghosh has been attached to the Department during the whole year as Zoological Assistant. He was on tour for 165 days and visited the following places :—

Bengal.

Amta.	Diamond Harbour.	Narayanganj.
Berhampur.	Feni.	Nurpur.
Bishnupur.	Geonkhally.	Nynan.
Burdwan	Garhbeta.	Rupasdi.
Champadanga.	Hasnabad.	Suri.
Dacca.	Khulna.	Tangi.
Damera.	Midnapore.	Taki.
Daulatpur.	Mud Point.	

Bihar and Orissa.

Mehsi.	Muzaffarpur.

The work done by this officer at the places named comprised general fishery surveys; attendance at Agricultural Exhibitions; distribution of carp-fry; and inspections of the mussel fisheries.

Publications.—During the year under consideration, the following papers have been prepared :—

I. *Bulletin No. 5.*—Being a report on Fishery Investigations in Bengal and Bihar and Orissa, with recommendation for future work. (Published.)

II. *Bulletin No. 6.*—A report on the Fish Trade in Bengal and Bihar and Orissa for the year ending 31st March 1914. In this report it is shown that the imports of fish to Calcutta are gradually declining. (Published.)

III. *Bulletin No. 7.*—Reports on (*a*) the Mud-turtle and Terrapin fisheries in Bengal (in conjunction with Mr. B. Das, M.A., Superintendent of Fisheries) and (*b*) a report on the fresh-water pearl mussel fisheries in Bengal and Bihar, and the industries connected therewith (with five plates). (Published.)

IV. A paper describing a large number of fish-diseases is in the Press and will be published in the Records of the Indian Museum (Volume XI, Part IV) as contribution No. 2 from the Fishery Laboratory.

V. A report on parasites from fish and aquatic birds in the Chilka Lake is also in the Press and will appear in the Records of the Indian Museum (Volume XI, Part IV) as contribution No. 3 from the Fishery Laboratory.

VI. A report dealing with the fishery rights in the estuaries and rivers, illustrated with coloured maps, is also ready for the Press.

VII. A report, in Bengali, of the work done by this Department during the year ending 30th June 1914, has been prepared by Mr. Das, Superintendent of Fisheries, for inclusion in the Bengali Journal *Krishi Samachar.*

VIII. A brochure, also in Bengali, dealing with the question of stocking tanks with carp fry, has been prepared by the Zoological Assistant. It is hoped to publish this brochure shortly.

IX. A report on the Fish Trade in Bengal and Bihar and Orissa for the year ending 31st March 1915, and papers on artificial cultivation of fish, and on unrecorded fish which eat mosquito larvæ, are also in preparation.

Laboratory work.—A considerable amount of scientific research has been carried out during the year in the Fishery Laboratory in the Indian Museum and also in the Laboratory on board the Fishery Steamer. The work done may be summarised as follows:—

(*a*) A number of larval parasites (Trematode) have been discovered in the skin of various fishes, including rohu.

(*b*) Other larval Trematode parasites have been found in the *flesh* of various fishes, such as rohu, singhee, etc. In some cases, the infection was so extensive as to render the fish unfit for the market. Infection is particularly heavy in fish obtained from certain beels, and may ultimately impair materially the value of the fisheries in such areas. It is not impossible that certain of these larvæ may become adult in the human intestine.

(*c*) The lice which attack rohu and give rise to epidemic diseases resulting in extensive deaths amongst those fish have been discovered and figured as *Argulus foliaceus.* Linn.

(*d*) A new species of fish-louse living on the bhekti has been figured and described as *Rocinella latis.*

(*e*) The Bombay duck (*Harpodon nehereus*) so common in the lower reaches of the Hooghly during the season were found to be infected with a Cestoda larva. Over 100 parasites were counted in the flesh of a single fish and every specimen caught was infected. The parasite was found to be *Syndesmobothrium folicolle.* The adult worm probably occurs in the intestine of rays and sharks. The parasite does not attack human beings and hence infected Bombay duck can be eaten with impunity.

(*f*) In my last Annual Report I stated that the Forest Officer of Naini Tal had reported to this office the occurrence of a fatal disease which had appeared amongst the trout in the streams and lakes near Naini Tal. The disease was found to be goitre (Carcinoma of the Thyroid).

Full details regarding all the above diseases and others are given in the paper previously referred to, which will be published in the Records of the Indian Museum (Volume XI, Part IV).

In addition to the preceding, extensive research investigations have been made in order to discover most suitable methods for artificially hatching carp and hilsa. Important observations have also been made with reference to the artificial cultivation of the eggs of *Notopterus chitala.*

Propaganda work.—As in past years an extensive system of propaganda work has been undertaken. The new launch recently supplied to the Department has enabled us to visit fishing villages which previously were more or less inaccessible. Our endeavours have always been directed towards giving information relative to the habits of fish generally, how they breed, the manner in which the young fishes develop, the best method of stocking tanks, etc., etc. In every case we have carefully gone into the difficulties which confronted the fishermen. This is labour which does not *appear* to be fruitful. We are convinced, however, that a continuation and extension of the work is most desirable. It enables us to obtain first-hand information relating to the actual condition of the fisheries, and of the circumstances and conditions under which the fishermen labour. It brings to the notice of fishermen the fact that a Fishery Department exists. At nearly all the places visited, we can now rely on the fishermen co-operating in any scheme which may ultimately be evolved for their improvement,

and for the improvement of the fisheries. We, therefore, believe that a continuation of this work will be fruitful in years to come, and so our present endeavours are to be regarded nearly as pioneer efforts.

The difficulties of the fishermen are two-fold. First, they complain of a growing scarcity of fish. We believe there is some foundation for this complaint. The cause and the remedy need not be considered here. Secondly, they complain of great poverty, and large numbers of fishermen all over the province are accordingly forsaking their vocation for agricultural pursuits. They are indeed poor. Present methods of leasing out fisheries are calculated to make them poorer still. I am convinced that an immense improvement in this direction will be possible by initiating Co-operative Credit Societies. As far as I am aware no improvement is possible by any other means. The number of Co-operative Credit Societies already established amongst fishermen is four. There has been no increase during the year. This is because no endeavours have been made in that direction. It was felt that if Co-operative Credit Societies were merely started with the single object of lending money at a lower rate of interest than the village money-lenders, no useful purpose would be served, and no permanent improvement made. Consequently, a survey was conducted of the fishery rights in the main rivers throughout both provinces, with the object of ascertaining to whom the fishery rights belonged, and where under lease, for how long, and for what amount. It is now proposed establishing Co-operative Credit Societies systematically, having regard to the special needs of each place. The attempt will be made, where practicable, to eliminate the middlemen by leasing out fisheries direct to organised bodies of fishermen. In this way it is hoped and believed that a material and continued improvement will be effected amongst the fishermen.

Agricultural Exhibitions.—The Department attended and had exhibits at the following places:—

Bengal.

Banjetia.	Falakata.	Rupasdi (Tippera).
Beliaknadi.	Feni.	Suri.

Bihar and Orissa.

Bihta.	Khagra (Purnea).	Ranchi.
Chaibassa.	Monghyr.	Sambalpur.

Tirhut.

The exhibits were similar to those of preceding years except that steps were taken to bring to the notice of the public, the products (such as pearl-buttons, earrings, nose-pendants, etc.) manufactured from fresh-water pearl-mussels. The exhibits everywhere aroused the interest of the public.

Hilsa Culture.—The construction of the launch for this Department was completed in February of the current year. It will, therefore, now be possible to utilise this vessel for hilsa investigations during the forthcoming rains. We have already established experimental hilsa-hatcheries at Cuttack and Buxar. Enquiries regarding the breeding habits of hilsa will also be made at other places, and we are now in a position to conduct the enquiries in a thorough and systematic manner.

Culture of Predatory Fish.—Our observations on the habits of certain voracious fish, such as *Notopterus chitala* (chital), *Ophiocephalus marulius* (sal), *Ophiocephalus gachua* (cheng), and *Saccobranchus fossilis*, etc., are by no means complete yet. We have ascertained, however, that the above species of fish breed early in June. They apparently begin to liberate their eggs during the showers of rain which precede the monsoon. The older fry frequently eat the younger brood. We have fortunately been able to gather a good deal of information regarding the breeding habits and the eggs of Chitala which is sure to be of considerable value in due course. In the beels of Eastern Bengal, these fish (particularly singhee) are heavily infected with a *Trematode* larva which occurs in the *flesh*. This circumstance is of some practical importance, inasmuch as the fish are undersized and unfit for the market. The conditions in the beel, under which the fish live, are such as suggest the probability of the infection being of a cumulative nature. Until the life-history of the parasite is known no steps can be taken to check the spread of the disease.

Tank Culture.—The present method of stocking tanks, practised throughout Bengal, is wholly unsatisfactory. The fry used for the purpose

almost invariably consists of several species, and in this way predatory fish continue to be introduced into tanks. The fry sold for the purpose of stocking tanks are so small that they are readily devoured by any voracious fish living in the tanks into which they are introduced. What is required is that the tanks should be stocked with rohu or other carps *only*, and that these should be of such a size as to be either practically immune from the attacks of predatory fish, or able to escape when attacked. By introducing carp *only*, the predatory fish already present in the tanks will gradulaly disappear except the smaller species which breed therein. The Department is doing all possible to effect the improvements desirable, and hopes to be in a position to supply an increasing number of pure carp year by year. During last rains, we purchased several thousands so-called carp-fry and hatched them out in tanks. When the tank was examined some months later, we found that the fry which we had placed therein consisted almost entirely of puntis (*Barbus puntio* and *Barbus ticto*) and other small species of different genera. We discovered later that it is a custom amongst certain of the women-folk to collect small fry from paddy-fields and to sell them as carp-fry, knowing them to be puntis, etc.

Carp Culture.—The principal food-fish of the people of this province consists of the various carps, such as rohu, catla, etc.

Numerous lines of investigation have been pursued from time to time which had for their object an increase in the supply of these fish.

Attempts were first made to induce tank-carp to breed in the tanks. As these experiments failed, river-carp were substituted and they also failed to breed.

The traffic in fish-fry was then organised.

It was recognised, however, from the first that this method was unsatisfactory, but, until the scientific enquiries regarding carp were completed, nothing better could be attempted.

The Department further recognised that, for the permanent and material improvement of the river and tank fisheries, it was essential that pure carp fingerlings should be available in great abundance, and at a cheap rate.

It is true that enormous quantities of fry can be obtained from the rivers during the rains, but as these fry not only consist of carp but of predatory species, the rearing and separation of these fry was found to be a matter of considerable difficulty.

Our researches have shewn that carp eggs can be artificially fertilised. We have now small carp hatcheries at Buxar and Cuttack. The operations are, however, still in the experimental stage, and we cannot at present attempt to meet the public demand from this source.

It is believed, however, that as a result of our experiments at the above stations, we shall be able to decide upon the most suitable methods of artificially fertilising and rearing the eggs of certain carps, and when once this is determined, the establishment of hatcheries of sufficient size, to cope efficiently with the demand for the carp-fry, and to satisfactorily stock the rivers, is but a small step.

Distribution of fry.—As there is a great demand during the rains for eggs and young fish, the Department last year undertook to supply fry at cost price to all applicants. Over five *lakhs* were distributed. Arrangements were made with the various railway authorities, so that persons from the mufassal, who had come to Calcutta to fetch their consignments, were allowed to take the vessels containing the fry into the compartment with them; consignees were thus enabled to exercise necessary care over the fry whilst in transit.

During the current year, notices in English, Bengali, Uriya and Hindi have been printed and distributed, informing the public that fry could be supplied by the Department. Up to the present we have received orders for over two and a quarter *lakhs* of fry. The same arrangements have been made with the various railway authorities this year, as obtained last year

It is to be regretted that we are not in a position at present to supply pure carp-fry in sufficient quantities. Were this possible, a notable improvement in the tank fisheries of this province would be evident in a very few years. We are hoping to be able to supply a limited number this year and to increase the number available every year. Although the industry is unsatisfactory in the particular detailed, we have had ample evidence that by taking interest in the matter, the Department has succeeded in spreading over wide areas important information with reference to tank-culture generally.

Marine and estuarine fisheries.—No opportunity occurred during the year for undertaking any marine work, and it is unfortunate that the resources of the Bay of Bengal still remain un-exploited.

We have already noted that the launch constructed for this Department was completed in February of the current year. Since taking over this boat, the systematic survey of the fisheries in the Sundarbans has been commenced. It is to be remembered, however, that the Sundarbans cover an area of about 5,700 square miles. Up to the present we have only surveyed the Hooghly fisheries from Calcutta to Mud Point, and the river fisheries in the district of Khulna. The area covered has not been more than 200 square miles, and it would obviously be premature to arrive at general conclusions until the investigations are further advanced. During our survey we employed both beam and otter trawls. Every fishing village within the limits named were visited. Our enquiries also extended to the beels, which are so numerous in the district of Khulna. Observations were made with reference to the employment of otters during fishing operations.

As a result of our enquiries we are convinced that trawling—even with small nets—will never be possible in the Sundarbans. Drift-nets are equally unsuitable. The native methods of fishing leave nothing to be desired in point of effectiveness. The difficulty is that the fishermen are so poor that they cannot even afford to buy or make new and better nets. We shall presently explain why this is so. A second difficulty is that, owing to the extensive steamer traffic through the principal water-ways, the fishermen are unable to lay fixed nets and are consequently obliged to work with small nets unsuited to catch the larger species of fish. Numbers of fishermen are taking up agricultural pursuits.

Fishery improvements will undoubtedly necessitate the artificial cultivation of certain species, but it is equally important that Co-operative Credit Societies should be established amongst the fishermen. Such Societies would not only effect an amelioration of the lot of the fishermen, but would do much towards organising the fish trade and placing it on a more satisfactory basis.

The Sundarbans is a tidal area, and as such, the fishery rights should belong to Government. Prescriptive rights have, however, been established over large areas, and instead of free fishing being allowed (as in the Hooghly and other tidal waters), the fisherman has now to pay rent for the privilege of fishing, in addition to being compelled to sell his fish to the lessee at a nominal figure.

The beels I examined in the Khulna district are in reality traps into which large numbers of young fish are carried during the rains, and captured before being mature. Predatory fish breed extensively in the beels, but as we have already seen, many species are so heavily parasitised as to be unfit for market.

Chilka Lake Fisheries.—During the year an inspection was made (along with Dr. Annandale, Superintendent, Indian Museum) of the fisheries in the main channel of the Chilka Lake. We had the use of a steam-launch which was hired from the Rajah of Kalicote by the Museum authorities. The launch was fitted temporarily with an otter-trawl and also with a beam-trawl. The latter was used principally for bringing up samples of the bottom, with the object of furnishing details relating to the food of fishes.

During the whole of our trawling operations, our catches consisted almost entirely of small rays, jelly-fish, and the bony fish (*Tricanthus brevirostris*), which is practically inedible. Only about ten edible fish were actually caught during the whole trip, and of these only one or two were suitable for the Calcutta market.

It is evident therefore that bottom-nets are useless, and that seine-nets or drift-nets are the only appliances suitable for work in the lake. The inference is simple, namely, that the fish in the lake are not bottom-fish.

My investigation of the fisheries near Parachud and Nalbana were fortunately of a more satisfactory nature. In the vicinity of these islands, and during flood, men are appointed to watch for the entry of shoals of fish in the more limited back-water areas. When fish are seen to enter in numbers, the entry is closed by a bamboo network. As the water area recedes, the fish are caught. On the land side of this netted enclosure is a narrow alley-way. Fish endeavouring to regain the open waters enter this alley-way, and are easily captured. The total arrangement is called a

"Jhan". It is an indigenous form of the "Commachio" system of fish-culture, in which fish are allowed to enter an enclosure at high water, and are prevented from returning during low tide.

The "Jhans" may extend over a length of four miles, although the majority are less than one mile in length. They are fairly numerous in the vicinity of Nalbana Island, Parachud and Noapara. The "Jhans" are usually erected in late October and early November, and only remain fixed for about one month. They are then removed as, during that period, all the contained fish have been captured, and no other shoals are available until the following year. The shoals enter the areas in question in search of food, which appears to consist of a small mussel which is extremely abundant at the time of the year when the "Jhans" are fixed. The fish caught are various species of mullet and bhekti. In addition, the fishermen in these areas use seine and drift-nets in which mullets (spp.), bhekti, and hilsa are caught. Hilsa were very abundant during my visit. The fish supply from the lake is derived from the "Jhans" and from the seine and drift-nets. As the depth of the water decreases after the rains are over, the seine and drift-nets are operated in different areas. There is also a daily, but small, change in the place where these nets are laid.

During my visit, the daily output from all the "Jhans" and nets, of good edible fish, well suited for the Calcutta market, was not less than ten maunds. I am not in a position to say whether this amount is available daily, the year round. I should judge not.

It is a fact that the Chilka Lake fisheries have a monthly variation so far as their productivity is concerned. I was repeatedly informed that for the first fortnight after full-moon, fish are increasingly abundant. During the second fortnight the supply gradually decreases.

Certain investigations were made with reference to the tide in the lake, but no definite conclusions were arrived at. It is well known that in many of the Scottish inland lakes there is a "tide" ("seiches"). Its origin is obscure. A similar "tide" appears to exist in the Chilka Lake. In addition, there is the effect produced by the wind acting for several hours in one direction, and the reverse effect on the opposite coast or shore when the wind has died down, or blows from another direction.

I am informed that during last September the bar of the lake suddenly moved about one mile to the north. The oyster supply seems to have been temporarily exhausted.

It is clear, I think, that the permanent denizens of the lake only include such hardy forms as are able to survive the extensive changes which take place in the lake during any year. In the rains (particularly at the north end of the lake) the conditions are practically those of fresh-water and fresh-water fishes, such as boali, etc., occur. Later on, the lake becomes more saline and the general conditions change greatly.

It seems probable that fish like hilsa and mullet only inhabit the lake in numbers when particular conditions are present. Possibly the same is the case with regard to bhekti. If this is so, the fisheries are bound to be of an uncertain and varying value. Our future enquiries will be directed towards ascertaining to what extent the bhekti, hilsa and mullet (and also prawns) occur at other periods of the year.

Investigations into the fishery rights in the estuaries and main rivers.—This enquiry which was commenced last year has been completed. It is to be noted that the fishery rights over large areas in the main rivers are permanently settled. Our object was to obtain details relating to those fishery rights which belong to Government, *i.e.*, to ascertain to whom they are leased, for how long, and for what sum. All the necessary information has been collected and tabulated, and a map has been prepared, indicating in colour, those fisheries which are permanently settled and those which are owned by Government. At present, all Government fisheries are administered by the Collector of the district in which the fisheries are situated. This Department has no control over any of the fisheries in either province.

The following results were arrived at:—

(*i*) The fisheries of the open sea (*i.e.*, those beyond the three miles limit) are, of course, open to be exploited by anyone.

(*ii*) At present, Government apparently prefers *not* to exercise control with reference to the fisheries situated within the three miles limit. The foreshore fisheries at Balasore, over a length of 15 miles, belong to the Ordnance Department, and a further adjoining portion is apparently privately owned.

The foreshore fisheries in the vicinity of Dhamra are also privately owned. As far as I am aware, no steps have been taken by Government to control the remaining foreshore fisheries.

(*iii*) In tidal waters the fishery rights belong to the public, Government being the Public Trustee. In the Jessore district, however, Government has waived its claim to the fisheries and over large areas in the Sundarbans, proprietary rights are claimed. Possibly in some cases this circumstance has arisen owing to waterways having changed their course, and commenced and continued to flow over permanently-settled estates. In other cases it appears that the establishment of proprietary rights has been due to the entire absence of any form of Government administration over long periods of time.

The result is that not only has a large potential revenue been lost to Government, but the fisherman has also lost his right to fish. Where prescriptive rights are claimed, the fisherman has to pay rent, and is further obliged (in the majority of cases) to sell his catch to the proprietor, or the lessee, at a ludicrously low figure. This is one reason why fishermen are poor, and why they are forsaking their calling.

Under conditions such as these it is extremely difficult to effect any improvement.

(*iv*) The fishery rights in the main rivers are partly owned by Government, but in many cases they are permanently settled. In some districts, portions of Government fisheries are for some reason or other, not farmed. In other cases, no one appears to know whether the rights belong to Government or not. Both permanently-settled fisheries and Government fisheries are, however, usually leased out. The lessee re-leases in small lots, and, as in the case of estuarine fisheries, the fisherman has not only to pay for the privilege of fishing, but he is almost always obliged to sell his fish to the lessee at a low figure. It is clear that the system of re-leasing and subleasing partly accounts for the poverty of fisherman, and also partly explains why the price of fish is high. If bodies of fishermen could be induced to take leases direct, a great improvement could be effected. I believe this is possible under a system of co-operation, and one object of the survey was to obtain a list of river fisheries owned by Government in the hope of being able to systematically initiate such Co-operative Credit Societies. If eventually found successful so far as Government fisheries are concerned, operations could be extended so as to include permanently-settled estates. We are now in a position to undertake their establishment at suitable places and to adapt them so as to meet the particular requirements of each place.

Enquiries into the Fresh-water Pearl-mussel fisheries.—During the year a careful inspection of these fisheries has been made. Our results are embodied in Bulletin No. 7. The mussel-fisheries are of importance, because they yield a fair harvest of pearls. The small shells are also utilised in the manufacture of lime, and the large shells are used for making pearl-buttons and ornaments.

The circumstances are such that it has been found impossible to determine the value and extent of the fisheries, but our investigations have shewn that they are of considerable importance. Button-making is a domestic industry over large areas in Eastern Bengal, particularly in the Dacca district. Ornaments, such as earrings, nose-pendants, watch-chains, studs and cuff-links are also made on a smaller scale. There is a button-making factory in Bihar and Orissa, where modern machinery is employed.

The shells utilised for the manufacture of buttons and ornaments belong to the genera *Parreysia* and *Lamellidens*.

Mussels have been fished in Bengal, principally for pearls for a very long time. Until lately the shells were burnt for lime. Button-making is a modern industry in this province dating back only about 35 years. It reached its zenith during the height of the "Swadeshi" movement, and has since gradually declined. Twenty or thirty years ago the mussel-fisheries in the Bhandardah beel (district Murshidabad) were of an extensive nature, giving temporary employment to large numbers of fishermen from neighbouring villages. It is said that about 50,000 maunds of shells were sometimes fished in one season. At the present time the fishery is of very small extent and barely provides temporary employment for the fifteen families who reside on the banks of the beel.

Mussels are to be found in most of the smaller rivers in Bengal and Bihar and Orissa, and also in *khals* and even in tanks, but there appears to be little doubt that the supply is diminishing. Our enquiries have been devoted

towards determining the factors which react so adversely on these fisheries, and on enquiring into the habits and life-history of the mussel.

The female mussel lays eggs which pass immediately to the gills of the animal, where they are fertilised with milt from the male which is carried there by slight movements of the water. The fertilised eggs remain in the gills for some time, the exact period has yet to be determined for each species of mussel. After development has proceeded to a certain stage, a larva (known as a Glochidium) appears. This larva, which has two minute *shells* and a *hook*, is then liberated into the water and attaches itself to the fins of certain fish until it becomes a young mussel. It then drops off the fish and commences life on its own. We found large numbers of Glochidia attached to the fins of an *Ophiocephalus marulius* caught in Eastern Bengal in early June of this year. No doubt other fish are implicated, but this has yet to be determined. Large numbers of young mussels measuring 1·5 mm.) were taken in bottom tow-nets at Buxar on 16th June. Our knowledge of the life-history of these mussels is thus increasing. It is clear that the welfare of the mussel-beds is intimately connected with the presence, in sufficient numbers, of certain fish. Any decrease in the occurrence of these fish means that the larval mussels cannot complete their life-history, and are thus lost.

The value of buttons (of all kinds) imported into this country from Austria-Hungary and Germany alone during the year ending March 1914 amounted to Rs. 4,06,214. It is clear that there are great possibilities of improving the mussel-fisheries in Bengal. Unless improvements can be effected, the button and ornament-making industries will probably cease to exist. The development of these industries depends largely on suitable shells being available in sufficient quantities. Until we have completed our investigations into the habits and life-history of the mussel, it would be useless to attempt to cultivate them.

The larval parasite round which pearls are formed has not been described yet.

Enquiries into the Turtle-fisheries.—During the year Mr. Das, Superintendent of Fisheries, and myself conducted a preliminary enquiry into the Terrapin and mud-turtle fisheries in Bengal. The results of our enquiries were published, along with a report on the fresh-water pearl-mussels, as Bulletin No. 7.

In Bengal, the industry of turtle-fishing is located principally in the districts of Bakarganj, Khulna and Faridpur. Turtle-fishing is also carried on at Rajmahal in Bihar. In our report, we detailed the places where such fisheries exist; the species fished were described, as were also the various methods of capture. It was found impossible to collect reliable details relative to the total number of turtles fished per annum, either at any one place, or in Bengal generally, and thus we were unable to estimate accurately either the value of the fisheries or the number of men and boats employed.

Our investigations, however, indicated that the total catches per annum were *not less* than 70,000 turtles of all species, having a wholesale value of about Rs. 42,000 and a probable retail value of nearly double that amount.

In consequence of the cruel manner in which the transport of turtles was effected, the various railways have ceased to carry turtles over their lines from 1st September 1914. This action on the part of the railway authorities has somewhat crippled the industry so far as the imports to Calcutta are concerned.

Certain species of turtles are eaten by the Chinese in Calcutta and they are also allowable as clean food amongst the Hindus. Amongst the Muhammadans the consumption of turtles is not definitely forbidden, but they are rarely eaten except amongst the Hanifi sect.

There does not appear to be any scarcity of turtles in the waterways of Bengal. Improvements in the industry appear to depend chiefly on methods being devised for exporting large numbers cheaply, and without unnecessary cruelty

Fish Traffic.—The first statistics collected by this Department related to the year ending 31st March 1913, and these were published in Bulletin No. 4. During the current year we collected statistics relating to the traffic for the year ending 31st March 1914. The imports of Calcutta both by railways and canals shewed a decrease, the total decrease being roughly 40,000 maunds. The quantity of fresh fish imported to Calcutta per annum from all sources, for the years 1913 and 1914, was 203,929 maunds and 163,613 maunds

respectively. The following table serves to emphasise the general inadequacy of supply :—

	Population.	Total quantity of fish available per annum.	Value.	Average quantity available per head per annum.
		Mds.	£.	Mds. lb. oz.
England and Wales ...	35,000,000	21,966,720	10,009,900	·63=50 0
Calcutta	900,000	163,613	109,075*	·18=14 8

It is thus clear that, other things being equal, the supply of fish over the whole of England and Wales is three and-a-half times what is available in Calcutta.

The statistics collected up to the present with reference to the traffic for the year ending 31st March 1915 are incomplete, but there is unfortunately evidence of a further decrease from all sources.

With reference to the fish traffic through the canals, we have been able to collect statistics covering the last ten years. The imports to Calcutta *vid* canals for the years 1905 and 1915 were 53,000 maunds and 41,000 maunds respectively. The *total* fish traffic through the canals for the year 1906 was 149,522 maunds, whilst for the year 1915 it only amounted to 52,264 maunds.

This decrease is very remarkable and is probably in part due to the development of the inland trade, and to the increasing use which is being made of the railway facilities in various parts of the area in question. Fish is probably scarcer now than it was ten years ago. Further, a contributing cause is the fact that numbers of fishermen have forsaken their calling in favour of the more lucrative agricultural pursuits.

Remarks.—It will be seen from this report that the work of the Department has covered a wide field.

The question of a sufficient fish supply, at a reasonably cheap rate, is a burning question in this province. There is no longer any room for doubt that the present supply is inadequate and the price high.

It is quite a mistake to assume that the rivers and waterways are "full of fish."

The deterioration of the fisheries has been in progress for many years. Our enquiries have led us to the belief that this has been due principally to the following causes :—

(*i*) *The initiation of various irrigation schemes, owing to which both mature fish and fry migrate in large numbers into channels where they are easily caught.*—The irrigation projects which originated in the Sone and Mahanuddy have permanently damaged, if not entirely ruined, the fisheries in these large rivers.

The ill effects of the systems of irrigations on the fisheries of this province are the more keenly felt on account of the fact that, owing to the low-lying nature of the plains, vast numbers of fishes, eggs and fry find their way into the paddy-fields and are lost.

(*ii*) *The lack of suitable administration, and of protective measures.*—No care has ever been taken of the fisheries. The resources have been continuously drawn upon until it is now clear that nature is incapable of meeting the demand. This result was predicted by Dr. Francis Day in the year 1879.

In most countries protective measures have been found necessary in order to save the fisheries from absolute depletion. The unrestrained capacity of man has everywhere proved harmful.

Until recently, the only interest which Government took in the fisheries was limited to the leasing out of the fishery rights and, as we have already seen, this work was done—and is still done—by the Collector of the district in which the fisheries are situated.

Undoubtedly there are other causes which have operated adversely on the fisheries, but we need not detail them here.

As a result of the permanent settlement, a large portion of the freshwater fisheries in this province are owned by private individuals, and these owners thus share with Government the responsibility of taking steps to

improve the present condition of the fisheries and of the fishermen. The Fishery Department has no control whatever over any of the fisheries in either provinces.

Whatever the causes have been which have so impoverished the fisheries, it is certain the process of repair will occupy a much longer period than has been occupied by the process of deterioration. Practical results, however much desired, are rarely easy of realization. The highly satisfactory operations in western countries have only been achieved, at great expense, by large numbers of trained men working over long periods of time.

In Bengal the Department is a young one. The magnitude of the task before the Department is fully recognized. Our energies may be said to have been directed—up to the present—to familiarising ourselves with the nature and extent of the problems with which we have to deal, and in this connection regard should be had to the enormous area, over which our work is spread, to the limited staff available and to the nature of the training these officers received for their work. We are now devoting ourselves to the task of actually increasing the number of fish available in the rivers and waterways by artificially cultivating the principal fresh-water species, such as rohu and catla. Operations of this character require to be carried out on an enormous scale. But the way has first to be found, and during the year a good deal of scientific research has been devoted successfully to this end. We have now every reason to believe that in the course of the next few years we shall make satisfactory progress towards stocking adequately the main rivers, and improving materially the culture of fish in tanks. Similar improvement may also be expected with reference to hilsa. Considerable scientific research will, however, be necessary before we are able to take up the artificial cultivation of bhekti and topsi, etc. An increase in the quantity of fish available will undoubtedly tend to reduce prices. The proposed extension of Co-operative Credit Societies amongst fishermen, by excluding large numbers of middlemen, will, it is hoped, have a similar effect, and will further improve directly the status of the fishermen.

The exploitation of the marine fisheries would at once effect a radical improvement in the fish supply, and it is to be regretted that, up to the present, enterprise in this direction is lacking.

With the new launch which has been supplied to the Department during the year, a survey of the Sundarbans fisheries is being systematically carried on, but it will be some considerable time before the investigations can be completed. During this survey researches are also being conducted into the habits of the principal estuarine fish, such as bhekti and topsi.

The preliminary enquiries into the fisheries of Bengal and Bihar and Orissa which have been made by the Department, although not markedly fruitful in results, have nevertheless been absolutely necessary. Now that these enquiries are completed, the entire efforts of the Department are being devoted entirely to the scientific cultivation of the principal marketable fish, and in this connection we have reason to confidently expect that our endeavours will be increasingly successful year by year.

T. SOUTHWELL, A.R.C.Sc. (LOND.) F.L.S., F.Z.S.,

Deputy Director of Fisheries, Bengal, and Bihar and Orissa

CALCUTTA,

The 1st July 1915.

ANNUAL REPORT ON SERICULTURAL OPERATIONS, BENGAL, DURING THE YEAR ENDING 30TH JUNE 1915.

THE general control and the management of the sericultural operations in Bengal were vested with the Bengal Silk Committee, consisting of the Director of Agriculture, Bengal (President), the Collector of Murshidabad, and two representatives of Messrs. Anderson, Wright and Company and the Hon'ble Mr. G. H. C. Ariff of the two principal silk concerns in Bengal. During the year under review, the Committee held four regular meetings attended also by visitors, who are interested in the silk industry.

Administration.—Babu A. C. Ghose, the Superintendent, remained in charge during the year, with a few Nursery Superintendents and Assistant Superintendents, who were left in charge of the Central Nurseries after some practical training had been given to them under the Nursery Superintendents.

The Piasbari and Amriti Central Nurseries are under the direct supervision of the Superintendent of Sericulture, Bengal, himself.

Mr. Probhat Chandra Chowdhary, in addition to his own duties as Superintendent of the Berhampore Central Nursery, is in charge of the cross-breeding experiments, since Mr. E. Grangeon's leaving India.

The Government has also sanctioned an experimental station at 5, Alipore Road, Calcutta, and the work has been started during the year under review.

Disinfection of village rearing houses.

This is a work which was started by the Superintendent of Sericulture, Bengal, since the year 1910. Supervisors on Rs. 25 per mensem were at first employed to disinfect the village rearers' rearing houses, and all the furniture used in them by strong copper-sulphate solution and to fumigate by sulphur where nursery seed was being reared and some good results were obtained; but this work has since been placed under the direct continual supervision of Assistant Superintendents and occasional supervision of the Nursery Superintendents. Adopting this method of supervision, the outturns, in many cases sold by the rearers very successfully as seed cocoons, and the results obtained thereby everywhere have been very successful. The Collector of Malda, Mr. Johnston, I.C.S., writes on the 31st May 1915 as follows:—

"I paid a short visit to the Piasbari Central Nursery on Saturday, 29th May. Babu A. C. Ghose, Sericultural Superintendent, Bengal, very kindly accompanied me and explained to me the various processes of silk-worm rearing. I was very pleased with what I saw, and in particular with the thorough manner in which the rearing houses had been disinfected and prepared to receive the next crop. The land attached to the nursery was originally jungle and swamp, but the work of cleaning the jungle is almost completed and the work of raising the low lands and spreading of silt from the tanks and digging up the mulberry lands are going on.

The seed raised in this nursery is of good quality, and I have since discovered that it is very much appreciated by the silk-worm rearers in the district who have purchased it, as the outturn it produces is about a hundredfold or more than double that of ordinary village seed."

Scheme for providing the whole quantity of silk worm seed cocoons required for the Province of Bengal.

It was at first proposed that the whole quantity of seed necessary for the Province should be reared in Government nurseries; but it has since been proposed that only one-third of the amount necessary should be reared in this way and that the remaining two-thirds should be reared by professional rearers working under the supervision of Government officers.

In order to make an estimate of the quantity of seed necessary for the whole Province, a census of mulberry was taken.

From the actual sale of seed-cocoons from the Berhampore Central Nursery (containing seven rearing houses and 66 bighas of mulberry lands), it has been found that it produced 3,918 kahans, but sold as seed-cocoons up to 3,022 kahans per annum and the rest was produced for reeling purpose, during August and November, when the rearers do not require seed at all,

and are reared in the nursery only to utilize the mulberry leaves to meet the expenses.

In foreign countries, such as France, Italy, Japan and China, Government in no case ever attempted to supply the entire quantity of seed, and the principal quantity is supplied through selected professional rearers, rearing under Government supervision, and the same is being followed slowly in Bengal as well.

The Assistant Superintendents and the Supervisors are supervising the disinfection of rearing houses, the furniture used in them, the rearing and daily cleaning of the litter of the worms, etc., and giving verbal instructions to the rearers and specially at the last stage of the worms, during the spinning time, they see that in case at any time any of those selected rearers' worms be attacked by muscardine, grasserie or flacherie due to bad rearing, they are never sold as seed, while each Nursery Superintendent also supervises occasionally.

Tour.—The Superintendent inspected the central nurseries as much as possible and spent 295 days on tour.

Inspection.—The Director of Agriculture, Bengal, inspected the nurseries four times and the village rearing houses twice.

Present condition of Silk Industry in Bengal.

The silk market had risen in July 1914 from Rs. 18 to Rs. 21 per seer which was never heard of within the last 16 years in Bengal, but suddenly the market came down to Rs. 9 to Rs. 11 per seer during September 1914, and since last March it is Rs. 10 to Rs. 13 per seer. Owing to the sudden fall of the silk market, the rearers suffered much loss, and the result is that in all the silk-producing districts there has been a slight decrease of mulberry cultivation.

Central Nurseries.

The following central nurseries existed on the 1st July 1914—

(1) Piasbari Central Nursery.
(2) Mirganj Central Nursery.
(3) Berhampur Central Nursery.
(4) Kumarpur Central Nursery.
(5) Chandanpur Central Nursery.
(6) Kalitha Central Nursery.
(7) Bogra Nursery.

Of the above nurseries, Piasbari began rearing from September 1914 the first time, and another central nursery at Amriti has just been completed.

And thus the following central nurseries existed on the 30th June 1915:—

(1) Berhampore Central Nursery	...	(Containing 7 rearing houses and 66 bighas 3 cottahs of mulberry land).
(2) Piasbari Central Nursery	...	(Containing 5 rearing houses and 56 bighas 16 cottahs and 6 chattaks of mulberry land).
(3) Mirganj Central Nursery	...	(Containing 6 rearing houses and 58 bighas of mulberry land).
(4) Kumarpur Central Nursery	...	(Containing 3 rearing houses and 35 bighas 6 cottahs of mulberry land).
(5) Chandanpur Central Nursery	...	(Containing 3 rearing houses and 29 bighas of mulberry land).
(6) Kalitha Central Nursery	...	(Containing 4 rearing houses and 51 bighas of mulberry land).
(7) Amriti Central Nursery	...	(Containing 4 rearing houses and 80 bighas of mulberry land, of which 60 bighas were planted by a contractor which are full of gaps, to be filled up by him during this rainy season).

(8) Bogra Nursery ... ... (Containing 5 small rearing houses and 28 bighas 6 Cottahs and 11 chattaks of mulberry land).

At Amriti no rearing work has been commenced as yet.

Of the above nurseries, only the Berhampore Central Nursery was in full working order and all the rest were under extension, and the following houses were built there with extension of mulberry lands noted against each of them :—

Piasbari Central Nursery	...	1 Assistant's quarters and 7 bighas 13 cottahs and 10 chattaks of mulberry land.
Bogra Nursery ...	...	1 Store-house. 1 Rearing house. 1 Dalla and chandrakee shed, and 3 bighas 18 cottahs and 15 chattaks of mulberry land.
Chandanpur Central Nursery	...	1 Rearing house.
Kumarpur Central Nursery	...	1 Rearing house. 1 Seed-cutting house and 13 bighas and 6 cottahs of mulberry land.

Interchange of seed between the Nurseries.

The Bogra Nursery has been started to purify and supply pure Chhotopoloo seed only by selection, generation after generation, to all the central nurseries, while Piasbari Central Nursery has been started to purify Nistari seed by selection, generation after generation, by microscopic examinations and supply to all the central nurseries, and Berhampore and Mirganj Central Nurseries are supplying Nistari seed to Piasbari Central Nursery.

At the very commencement of the policy of starting small nurseries, a small quantity of seed used to be reared by the Superintendent in his own private quarters, but while more small nurseries were established in 1904, seed had to be imported from villages, which was most unsatisfactory for want of nurseries at Bogra and Malda, which were not started during the time of the Eastern Bengal and Assam Government.

With the starting of the above nurseries the practice of using ordinary village seed was stopped, and since then the keeping up and interchange of seed has effected a very great improvement towards the success of supply of pure seed from the nurseries.

Supply of Nistari and Chhotopoloo seed.

Seed pure and free from all diseases was always reared in all the central nurseries and sold to the rearers from which the rearers everywhere obtained successful results, and in many cases the outturns in the rearers' houses were sold as seed-cocoons.

The total quantity of seed sold during the year was 8,145 kahans 6 pons and 1 gonda, and the price obtained thereof was Rs. 10,170-4-6.

The total receipt from the outturn of the nurseries from 1st July 1914 to 30th June 1915 was as shown below :—

		Rs.	A.	P.
Sale-proceeds of seed cocoons	... ...	10,170	4	6
Ditto cocoons ...	... ...	2,012	5	3
Ditto rejected cocoons	... ...	71	2	3
Ditto mulberry leaves	... ...	707	1	0
Ditto miscellaneous articles	...	108	4	9
Total	...	13,069	1	9

If compared with the total receipts of the last two years, it would appear that there has been an encouraging increase, owing to the starting of Piasbari Central Nursery under close supervision of the Superintendent

himself, which began rearing seed from September 1914, the first time during the year under review, as shown below :—

	Rs.	A.	P.
1912-1913	8,589	10	0
1913-1914	8,324	3	0
1914-1915	13,069	1	9

The details of the year under review are shown separately of each central nursery as stated below :—

Name of Nursery.	Outturn.																				
	Seed.				Cocoons.				Rejected cocoons.				Mulberry leaves.		Miscellaneous articles.			Total price.			
	Ks.				Ks.				Ks.				Rs.	A.	Rs.	A.	P.	Rs.	A.	P.	
Berhampore Central Nursery.	2,145	0	15¼		895	9	10		29	2	5		335	8	39	9	0	3,603	13	6	
Piasbari Central Nursery.	2,408	12	9		78	12	0		24	0	0		...		21	5	6	3,684	2	9	
Mirganj Central Nursery.	1,507	12	14		726	11	0		114	6	0		...		13	8	0	2,566	13	6	
Chandanpur Central Nursery.	827	6	3½		292	4	0		46	0	0		272	0	14	1	3	1,424	4	3	
Kumarpur Central Nursery.	633	15	11		229	0	0		16	4	0		99	9	7	1	0	956	3	3	
Kalitha Central Nursery.	622	6	8¼		208	0	0		21	0	0		...		12	12	0	833	12	6	
Total ...	8,145	6	1		2,430	4	10		250	12	5		707	1	108	4	9	13,069	1	9	

From the above it seems that the Piasbari Central Nursery has produced the biggest quantity of seed-cocoons in ten months and the sale-proceeds are much higher than all the Central Nurseries, which is most encouraging.

The reasons for the smallest quantity of production of seed-cocoons from the Kalitha Central Nursery is due to bad mulberry owing to excessive rains and fall of big hail-stones in two crops, and also owing to about 25 bighas of mulberry lands in which too much limestone has come out of the soil, which will shortly be given up. Kalitha is a hilly place situated in the Birbhum district. Cyclones and fall of hail-stones are too heavy there.

Expenditure.—The total expenditure of the Nurseries, including the office establishment from 1st July 1914 to 30th June 1915, was as shown below :—

	Rs.	A.	P.
Salaries	5,080	0	0
Travelling allowance of the Superintendent ...	1,906	14	0
Pay of establishment	18,905	10	1
Travelling allowance of establishment ...	3,427	12	3
Stipends	290	6	6
Petty construction and repairs	34,483	9	11
Cost of land	770	15	0
Rates, rents and taxes	1,972	8	11
Rewards to nurserymen	370	0	0
Cultivation charges	35,592	3	4
Disinfection of village rearing houses ...	1,300	11	6
Cost of microscopes	692	7	6
Miscellaneous charges	19,932	6	5
Total ...	1,24,725	9	5

Training of Rearers' sons.

Six professional rearers' sons have been trained, of whom two students passed the final examination from the Berhampore Central Nursery Sericultural class, and was paid Rs. 250 each as reward. They have constructed model rearing houses and have just started the rearing, for which they were also provided with wire-nets, thread-nets and two miscroscopes.

A. C. Ghose,

Superintendent of Sericulture, Bengal.

REPORT ON THE WORK DONE AT THE SERICULTURAL RESEARCH AND CROSS-BREEDING STATION AT BERHAMPORE, DURING THE YEAR ENDING 30TH JUNE 1915.

Ever since Monsieur E. Grangeon's departure for the front in France in August last, I have been conducting his researches on the amelioration of indigenous races by cross-breeding and other experiments. These may be divided into the following three main divisions :—

(1) Crosses of indigenous races with the Multivoltin Madagascar race in various mixture of blood.
(2) Crosses of indigenous races with the Accidental Bivoltin race derived from a pure Univoltin race.
(3) Improvements of indigenous breeds by the method of selection and rearing by families.

The characters chosen for experiments are—

(1) colour and shape of cocoons :
(2) larval markings ;
(3) size of worms ;
(4) hardiness of the breed as regards resistance to diseases, climatic conditions and the food-stuffs ;
(5) quality of the cocoon and the yield of silk ; and
(6) brood character.

A.—Crosses of indigenous races with the Multivoltin Madagascar race.

The Madagascar race is a Multivoltin race of pure European extraction and yields five generations yearly against silkworms going up to eight generations in Bengal. The latitude of the Madagascar is the same as that of Bengal, but the Madagascar is at a higher altitude. The cocoons derived from pure Madagascar is almost as good as Piedmont and Cevennes. To preserve the Madagascar race in Bengal as a pure race is not of much practical utility, as the race suffers much from flacherie and grasserie during the months of May to July in this country. Besides, the worms of this race are very big and the Bengal rearers are against rearing any race yielding such big worms. Monsieur E. Grangeon made a considerable number of crossings between the indigenous races and the Madagascar race in all possible combinations, in order to make a comparative study of the advantages and yield of each ; from these crossings with the Madagascar as well as those of other crosses we are led to infer that in Hybridizing experiments :—

(1) The crosses of the type superior male with inferior female are invariably and consistently superior to the type superior female with inferior male.

(2) The maternal characteristics are generally predominant in the disposition of the crosses in being converted into uni-Di or Multivoltins, as in the following instances :—

Accidental Bivoltin female crossed with Nistari male-eggs laid all Univoltin or maternal.

Accidental Bivoltin male crossed with Nistari female-eggs laid all Multivoltin from the 3rd generation or maternal.

Madagascar female crossed with Nistari male-eggs laid change colour like the Madagascar to a slight pink on the third day and black on the 4th day or maternal.

Madagascar male crossed with Nistari female-eggs laid change colour like Nistari on the day before hatching or maternal.

(3) The colour of the cocoon and larval markings of our silkworm crosses follow strictly the mendelian principles of dominant and recessive characters. It has been noticed that the yellow character is the most dominant. As regards larval markings, the striped one is dominant.

Some Typical Crosses.

(1) Madagascar female crossed with Nistari male—Crossing of a pale white Madagascar race with yellow Nistari.

This race was first crossed on the 31st March 1914, and the female of the first generation was re-crossed on the 14th May 1915 with an accidental Bivoltin male. This cross—(Madagascar female crossed with Nistari male) female crossed with accidental Bivoltin male—is at present at the 7th generation and is continuing quite well, but the original (Madagascar female crossed with Nistari male) could not pass through the rainy season in Bengal. When we try to explain this fact from the remarks made above that a superior male crossed with an inferior female yields a better type, we find its application in this case. But this fault was rectified by re-crossing the female of the 1st generation with the male of an Accidental Bivoltin race thus bringing up the type to this standard.

The size of the worms is approximately 1½ times that of Nistari, whilst the larval markings correspond exactly with those of Nistaries.

The hatching of eggs is similar to that of the Madagascar race exhibiting maternal characteristics, in that the eggs change colour on the 3rd day to a slight pink and black on the 4th day. The colour and shape of cocoons are like the Nistaries, whilst the weight of silky substance in one cocoon is 3 grains against 1½ grains of Nistaries.

(2) Madagascar male crossed with Nistari female—

Crossings of a pale white Madagascar race with yellow Nistari. The dates of this correspond with the previous one. This crossing is at the 8th generation now. The cocoons are yellow in colour like the Nistaries and the worms are double those of Nistaries in size with larval markings like Nistaries. The eggs change colour on the day before hatching similarly to Nistaries.

But this race of worms being too big in size and susceptible of contracting grasserie as also in that the consumption of leaves is too great and the Bengal rearers would prefer a smaller race, we have established a smaller type by re-crossing as in the following :—

(Madagascar male crossed with Nistari female) Male (F) crossed the Nistari female.

(Type showing ¼th Madagascar blood and ¾th Nistari blood). Here, the colour of cocoons, larval markings and the hatching of eggs are exactly as in the preceding one, but the size of the worms have been brought down to 1¼ times the size of Nistari worms with a reduction of only ½ grain in the weight of silky substance in each cocoon from that of the bigger race ; thus, showing 2½ grains instead of 3 grains per cocoon. This slight decrease in silk is greatly compensated by the gain in space thus making it possible to derive more outturn by rearing in the same space.

(3) Crossing of a pale yellow race of Madagascar which is being continued since the time of Mr. Lafont. The cocoons are of golden yellow colour. The worms have markings similar to those of Nistaries and are 1½ times of their size,

B.—Crosses with Accidental Bivoltins.

Under natural conditions, the eggs of silk-worms undergo a partial development directly after they are laid, as shown by their changing colour. After oviposition, and until subjected to cold, the eggs of the Univoltin races are not capable of hatching out. This is the rule, although we find in a batch of annual eggs a few that hatch some fifteen days after they are laid. This is what is known as Accidental Bivoltins. By properly crossing the moths obtained by rearing these accidentally hatched lot of worms with Multivoltin races, the task of creating a Multivoltin breed is greatly facilitated as is shown from our experiments. Whilst if we cross a Univoltin male with a Multivoltin, we do not almost get any hatching at the second generation. But, by employing Accidental Bivoltins we get about 50 per cent. hatching and the 3rd is entirely Multivoltin. This has been clearly shown in the following experiments :—

About 50 worms were obtained by the accidental hatching out of an Univoltin breed and these were reared. But most of them died of flacherie and we got only four cocoons of pale white colour from which four male moths emerged out and were crossed on the 21st March as in—

Accidental Bivoltin male crossed with Nistari female.

The 1st generation gave only 25 per cent. hatching out whilst the second generation yielded 50 per cent. and the 3rd was entirely Multivoltin. This

race is at present at the 9th generation. This type promises very well, and we expect it to be a distinct type by itself in future.

We have preserved two kinds of worms from this. One type of worms resemble Chhotopoloo worms; whilst the others resemble Nistari types. But the Chhotopoloo type shows signs of breaking up, whilst the Nistari has practically become a fixed one.

The cocoons in both the cases are yellow in colour, there being simply some difference in shape.

The weight of silky matter in each cocoon is 2¾ grains for the Chhotopoloo type of worms, whilst 3 grains for the Nistari type.

Other Crosses.

We are also rearing several other crosses. One of these worth mentioning is a cross between the Mysore and the Madagascar cross. This is at the 3rd generation now and consequently it is too premature to say anything.

C.—Improvements of Indigenous Races by Selection and Rearing by Families.

Experiments on improving the following indigenous races are being carried on :—

Nistari	...	...	...	(Bombyx Craesi).
Chhotopoloo	...	...	...	(Bombyx Fortunatus).
Mysore	...	...	...	(Bombyx Meridionalis).

It is satisfactory to note that in all these cases the results obtained have been highly encouraging, so much so, that races originally containing simply 1½ grains of silky substance per cocoon have gone up to 2 grains per cocoon in eight generations only.

Each cocoon is weighed after taking out the chrysalis and only the moths out of the cocoons rich in silky substance and of good shape and hardness, are kept for reproduction. The female moths are then subjected to microscopic examination and the layings of the healthy moths alone are kept. The laying of each respective moth is then reared separately and any exhibiting slight tendency towards weakness, is rejected. Eventually in mating every care is taken to preserve the consanguinity of the families and the offspings are all homogenous.

Rearers' System.

In the houses of the rearers the silk-worms cannot be expected to be so carefully reared as in the Government nurseries. To test the strength and capacity of the races for resisting the rough and drastic treatment at the rearers' houses, we are subjecting a lot from each of our cross types to the same treatment for several generations. For instance, the system of delitage by means of thread-nets is done away with in this case; the worms are placed very thickly in the trays as also the layings are reared without examination. The races that were subjected to this treatment showed slight decrease in the yield of silk per kahon.

Yield of the Different Races.

The following table will show the yield of each type and the weight of each type of worms, etc.

Serial No.	Race.	Average weight in grain of one worm.	Average weight in grain of silky substance in one cocoon.	Number of kahons (1280 cocoons) required for one seer of raw silk.	Weight of floss for one seer of silk produce.	Remarks.
	Pure Nistari.	Grs.	Grs.	K. P.	Tolas.	
1	Improved by selection ...	27	1½	11 4	23 0	This is an improvement upon the ordinary run of Nistaries which generally require from 14 to 18 kahons for yielding one seer of raw silk
2	Madagascar male crossed with Nistari female, 8th generation.	47	2½	5 10	24 12	
3	(Madagascar male crossed with Nistari female) Male crossed with Nistari female, 18th generation.	28	1¾	9 0	25 0	

Serial No.	Race.	Average weight in grain of one worm.	Average weight in grain of silky substance in one cocoon.	Number of kahons (1280 cocoons) required for one seer of raw silk.	Weight of floss for one seer of silk produce.	REMARKS.
		Grs.	Grs.	K. P.	Tolas.	
4	Accidental Bivoltin male crossed with Nistari female, 8th generation.	45	2¾	5 14	25 5	
	Worms like Nistari.					
5	Accidental Bivoltin male crossed with Nistari female, 8th generation.	38	2½	6 8	27 13	
	Worms like Chhotopoloo.					

These are only a few of the various types we have got. In each case the yield of silk has been considerably increased.

D.—Influence of Leaves on the Richness of Silk.

In Bengal the leaves are consistent and of good quality from October to April, and the deterioration in the quality continues from May to August. In order to preserve the vigour and hardiness as well as the quality of the silk of each of our races, a hill station has been started at Kurseong to try the effect of the climate of that place on these races during this time. This place is also intended to be utilised as a station for keeping the stock races during these bad months from May to August, provided the results are encouraging.

Kurseong Sericultural Station.

The working of this station has already commenced and we have just finished our crop there. The following comparative table showing the weight of silky matter in each of the lots sent there as against the weight of the same lots reared at Berhampore during the same period, will testify to the advantage and the good effect of this change.

Comparative statement of the average weight in grains of silky substance in one cocoon of the different crosses reared at the Kurseong Sericultural Station during May—June 1915, with the average weight in grains of silky substance in one cocoon of the same crosses reared at Berhampore during May—June 1915 :—

Serial No.	Race.	KURSEONG SERICULTURAL STATION.			BERHAMPORE SERICULTURAL STATION.		
		Average weight of silky substance in one cocoon by taking ten readings.	Maximum weight.	Minimum weight.	Average weight of silky substance in one cocoon by taking ten readings.	Maximum weight.	Minimum weight.
	Big Worms.	Grs.	Grs.	Grs.	Grs.	Grs.	Grs.
1	Madagascar male crossed with Nistari female, 8th generation.	2½	3	2¼	2¼	2½	2
	Small Worms.						
2	Madagascar male crossed with Nistari female, 8th generation.	2¼	3	2¼	2¼	2½	2
	Worms like Chhotopoloo.						
3	Accidental Bivoltin male crossed with Nistari female.	3	5	2½	2¾	2¾	2
	Worms like Nistari.						
4	Accidental Bivoltin male crossed with Nistari female.	3	4	2½	2¾	2¾	2

In spite of rain and unfavourable weather prevailing throughout, the results have been specially interesting and encouraging. In the case of the accidental Bivoltin cross the maximum weight obtained from one cocoon came to 5 grains against maximum of 3 grains at Berhampore at this period. The temperature and weather charts shown below will show the respective weather conditions of the two places.

Kurseong Sericultural Station.

Date.	Temperature.				Weather.
	5 p.m.	10 a.m.	4 p.m.	10 p.m.	
1915.					
9th May ...	Nil	78°	82°	74°	Cloudy and sultry.
10th ,, ...	70°	73°	75°	74°	Cloudy and rainy.
11th ,, ...	71°	72°	74°	73°	Cloudy and sunshined.
12th ,, ...	72°	73°	74°	74°	Cloudy and rainy.
13th ,, ...	72°	73°	74°	74°	Ditto.
14th ,, ...	72°	73°	74°	73°	Ditto.
15th ,, ...	72°	72°	73°	73°	Ditto.
16th ,, ...	70°	71°	72°	73°	Ditto.
17th ,, ...	70°	73°	75°	75°	Cloudy.
18th ,, ...	72°	72°	75°	74°	Cloudy and sunshined.
19th ,, ...	4 A.M.	10 A.M.	4 P.M.	10 P.M.	Nil.
18th ,, ...	71°	73°	77°	75°	Cloudy.
20th ,, ...	73°	74°	78°	72°	Cloudy and rainy.
21st ,, ...	71°	72°	75°	70°	Ditto.
22nd ,, ...	68°	68°	69°	69°	Rained heavily.
23rd ,, ...	67°	67°	69°	68°	Ditto.
24th ,, ...	67°	67°	69°	69°	Ditto.
25th ,, ...	68°	69°	71°	70°	Ditto.
26th ,, ...	68°	70°	72°	71°	Ditto.
27th ,, ...	69°	69°	71°	70°	Cloudy and rainy.
28th ,, ...	68°	68°	71°	70°	Ditto.
29th ,, ...	68°	69°	72°	70°	Ditto.
30th ,, ...	68°	69°	72°	71°	Ditto.
31st ,, ...	69°	69°	70°	69°	Rained heavily.
1st June ...	67°	69°	70°	69°	Cloudy and rainy.
2nd ,, ...	68°	68°	72°	69°	Rained heavily.
3rd ,, ...	68°	70°	72°	70°	Cloudy and sunshined.
4th ,, ...	68°	69°	68°	70°	Cloudy.
5th ,, ...	66°	67°	69°	68°	Cloudy and rainy.
6th ,, ...	67°	70°	72°	68°	Ditto.
7th ,, ...	67°	70°	72°	70°	Sunshined and rained.
8th ,, ...	69°	70°	72°	71°	Cloudy and drizzling.
9th ,, ...	68°	69°	70°	70°	Cloudy and rainy.
10th ,, ...	67°	68°	72°	69°	Cloudy and sunshined.
11th ,, ...	69°	69°	70°	70°	Ditto.
12th ,, ...	68°	69°	73°	69°	Ditto.
13th ,, ...	67°	68°	72°	70°	Rained heavily.
14th ,, ...	69°	69°	70°	70°	Cloudy and rainy.
15th ,, ...	68°	68°	72°	70°	Ditto.
16th ,, ...	66°	69°	70°	69°	Ditto.

Berhampore Sericultural Station.

Date.	Temperature.					Weather.
	4 a.m.	9 a.m.	1 p.m.	5 p.m.	9 p.m.	
1915.						
6th May ...	Nil	84°	85°	85°	84°	
7th ,, ...	83°	84°	84°	84°	84°	
8th ,, ...	84°	85°	85°	85°	84°	
9th ,, ...	82°	83°	83°	84°	83°	Rained heavily.
10th ,, ...	83°	84°	83°	82°	81°	
11th ,, ...	81°	82°	83°	84°	82°	
12th ,, ...	82°	83°	84°	82°	82°	
13th ,, ...	81°	82°	83°	83°	83°	
14th ,, ...	82°	84°	84°	85°	84°	Rainy cloudy.
15th ,, ...	81°	82°	83°	82°	82°	
16th ,, ...	82°	83°	85°	85°	83°	
17th ,, ...	84°	83°	84°	83°	83°	
18th ,, ...	82°	85°	82°	82°	84	
19th ,, ...	84°	82°	82°	82°	83°	
20th ,, ...	82°	82°	83°	83°	83°	Rainy cloudy.
21st ,, ...	81°	83°	85°	85°	...	
22nd ,, ...	82°	82°	85°	84°	85°	
23rd ,, ...	83°	82°	83°	83°	82°	
24th ,, ...	81°	84°	83°	82°	82°	
25th ,, ...	82°	84°	87°	85°	84	
26th ,, ...	84°	85°	...	87°	85°	
27th ,, ...	85°	85°	...	86°	84°	
28th ,, ...	84°	84°	...	85°	83°	
29th ,, ...	84°	85°	...	85°	84°	
30th ,, ...	83°	84°	...	84°	84°	Rainy cloudy.
31st ,, ...	83°	84°	...	84°	83°	
1st June ...	82°	83°	...	84°	83°	
2nd ,, ...	83°	84°	...	85°	84°	
3rd ,, ...	82°	84°	...	84°	84°	
4th ,, ...	82°	83°	...	84°	83°	
5th ,, ...	83°	83°	...	84°	82°	
6th ,, ...	82°	83°	...	...	...	

The proposed scheme.

Since the proposed scheme was clearly explained in his last report by Monsieur Grangeon, the originator of the same, I need not dwell on it here again. Its principal aim is to help the rearers in deriving good results and profits; it is proposed to substitute the indigenous races by these improved cross races during the months from October to April, whilst during the rainy and hot seasons from May to September they will be supplied with selected Nistaries, since these cross races cannot stand sufficiently well the effect of the climate of Bengal at that period. By sending the crosses to Kurseong during the bad season (May to August) their quality will be preserved, and the races may be again brought down to the plains in August and the seeds will be supplied to the rearers from October. The advantage of this substitution is obvious as is evident from the statement of the yield of each type shown above. The rearers in this way will derive more profit than by rearing Chhotopoloos or Nistaries, as the production will be doubled with very little additional expenses in rearing arising out of slight increase in consumption of leaves.

Prabhat Chandra Chaudhuri,

Superintendent of Sericulture, In charge Sericultural Research, Berhampore.

ANNUAL REPORT OF WORK DONE AT THE MIRGANJ NURSERY, DURING THE YEAR ENDING 30TH JUNE 1915.

I CONTINUED to be in charge of the nursery for the year under report.

1. The work consisted chiefly in the production of healthy indigenous seed and supply of same to rearers. The following is a statement of the outturn of the year and their proceeds:—

	Outturn.			Proceeds.		
	K.	P.	G.	Rs.	A.	P.
Seed cocoons	1,507	12	14	2,001	11	6
Cocoons	726	11	0	521	1	3
Rejected cocoons	114	6	0	30	8	9
Miscellaneous				13	8	0
Total	2,348	13	14	2,566	13	6

Against an outturn of 1,898 K and proceeds 1,797 of the previous year.

The quality of the seeds was more improved, and the result derived on the rearers was very satisfactory. The average price per kahon seed was Re. 1-5, and sixty-seven per cent. of the total outturn was disposed of as seed.

2. The nursery also did useful work in supplying seed to all the nurseries and the Rajshahi Sericultural School. This present arrangement of exchange of seed between the nurseries has been of great benefit.

3. A third work was keeping care of the work of the local rearers. They were helped with disinfectants and instructed in the use of them. I am glad to report there has been no epidemic disease among their worms throughout the year.

4. Experiments with other races of worms producing white cocoons were tried from seeds sent by the Imperial Entomologist. They could be reared like the indigenous races and their cocoons were better. These experiments will be repeated to arrive at a definite result.

5. I visited the Bogra Nursery twice. Bogra claiming to be the favourable place for Chhotopoloo worms, efforts are being made there for the production of disease-free Chhotopoloo seed for supply to the larger nurseries. These have in their turn got to supply the seed reared from Bogra seed to rearers. The seeds produced there last year were more improved than those of the previous year.

6. I visited the Rajshahi Sericultural School twice. The school admits twelve apprentices, who are to be rearers' sons, every year. Twelve apprentices passed out of the school last year, and they were instructed in the Pasteur System of work.

7. The nursery at Mirganj has been developed by one more rearing house and ten bighas mulberry.

8. The staff remains as usual.

M. M. CHAKRAVARTI,
Supdt. of Sericulture, Mirganj.

MIRGANJ,
The 28th June 1915.

WORK DONE AT THE BERHAMPORE CENTRAL NURSERY, DURING THE YEAR ENDING 30TH JUNE 1915.

Outturn.

Seed-Cocoons.			Cocoons.			Rejected Cocoons.			Leaves Sold.		
K.	P.	G.	K.	P.	G.	K.	P.	G.	Md.	Sr.	Ch.
2,145	0	15½	895	9	10	29	2	5	335	0	0

Remarks.

Seed-cocoons were sold to purchasers from Rajshahi, Malda, Birbhum and the Murshidabad districts. The results have been highly satisfactory in Murshidabad district. In other places in spite of the difficulties and dangers

in the journey by train, etc., especially in this season, the outturns have been quite satisfactory. As seed-cocoons have to be taken in caskets by purchasers going by train, these naturally get heated. In addition to this, the negligence of the railway staff at the time of transhipment is also a great drawback. I have been sending one Overseer with each batch up to Lalgola to see to the proper transhipment, but even then great difficulty is felt there for coolies and the bad effects of the journey cannot be avoided.

It is, however, worth mentioning that in several places the outturns from this nursery seed were sold as seed-cocoons, and the rearers derived more income accordingly. This selling of their produce as seed-cocoons clearly indicates that the seed-cocoons supplied from the nursery were free from disease, as no rearer would purchase any other than good ones for seed purposes without critically examining the condition of the worms at the spinning time.

Village Work.

Arrangements have been made to disinfect the houses of silk-rearers in certain localities. Several rearers have been selected who will rear for selling their outturns as seed-cocoons. Their houses will be disinfected at Government expense, and they will be offered every help in the way of instruction.

Besides, the scheme to help the *ex*-students of Berhampore Sericultural School to rear for selling their outturn as seed-cocoons is under contemplation, and arrangements are being made to offer them every facility.

Sericultural School.

The working of the school continued regularly. The students were taught the theories and practice of rearing of silk-worms, microscopic examination, detection of diseases and the cultivation of mulberry lands with some rudimentary knowledge of general agriculture. Two of the senior students are to be examined by the end of July.

Some of the *ex*-students were supplied with thread-nets, microscopes and wire-nets, as their rearing houses have been completed.

Extension of Mulberry Land.

About seven bighas of waste lands have been brought under cultivation this year, thus bringing the total area of cultivated land to nearly 71 bighas. The old system of planting the mulberry bushes near each other with only a margin of one foot between the rows, is to be substituted by planting the rows at a distance about 5 ft. apart in order to employ the improved system of hoeing for interculture and thereby reduce the cost of cultivation to some extent.

PRABHAT CHANDRA CHAUDHURI.
Supdt. of Sericulture, Berhampore.

BERHAMPORE.
The 3rd July 1915.

REPORT ON SCIENTIFIC WORK IN CONNECTION WITH SILK DONE FROM 1ST APRIL 1915 TO 30TH JUNE 1915 BY MISS M. L. CLEGHORN, F.L.S., F.E.S.

THE Government of Bengal sanctioned a grant of Rs. 5,000 per annum for me to continue and extend my research work in connection with silk. Owing to the present financial stringency the Government of Bengal was unable to sanction a larger sum, so Mr. J. A. Anderson, of Messrs. Clark, Wilson & Co, London, and of Messrs. Anderson, Wright, & Co., Calcutta, arranged to continue his grant of Rs. 150 per mensem for the next two years. My father, Mr. James Cleghorn, is also making me an allowance of Rs. 150 per mensem, as this research work entails considerable expense.

The experiments in cross-breeding started at 57, Ballygunge, were removed on the 1st May 1915 to 5, Alipore Road, where the ground floor is eminently suitable for the silk laboratory and rearing rooms, and the extensive grounds for a mulberry plantation, and the large stabling is being converted into a control rearing house.

A multivoltin hybrid race of silk worms, started in January 1911 and reared on only a small scale, is now being continued on a much larger scale, and the 36th generation of this cross has given cocoons superior to the Nistari. As I am now able to work on a large scale, I hope to fix this race as it has given promising results, considering the very small scale on which it has been kept up for 36 generations. Mendelian and other experiments on the inheritance of the brood characters, weight of cocoons, etc., will be started on an extensive scale as soon as there is sufficient mulberry.

Regarding the mulberry, owing to the great heat in April, it was doubtful whether the mulberry plantation could be laid out before October, but early in May there was heavy rain and, as the land was already prepared and manured, the opportunity was taken advantage of and about 350 bushes of mulberry were transplanted daily from the plantation at Ballygunge, to the extent of about 2,000 bushes in all. This was an experiment which might have failed entirely during the month of May, but it was risked with very happy results, for there was a loss of only 1 per cent., and now, about eight weeks after, the bushes are 5 to 6 feet high and covered with an abundance of healthy leaf. About half a bigha has been planted out with cuttings of Berhampore mulberry, which promises well. Other specially selected fruitless mulberry, of which I have 70 plants, and which will bear leaf between October and January, when leaf is very hard to obtain, have also been successfully transplanted. Two hundred and thirty saplings of male mulberry have also been successfully transplanted, at the rate of ten per day, and laid out 10 feet apart. Three hundred seedlings of a good variety of mulberry have been potted out, and several thousands of cuttings of various good varieties have also been planted. Nearly the whole of the grounds have now been utilised, but from want of land over 400 trees, among which are many Hungarian mulberry, have had to be left behind at Ballygunge till the Government allot a few more bighas of land.

My experiments in germination have shown that the Indian varieties of mulberry must be sown in Bengal in March and April from freshly gathered fruit, and not in June and July or in October.

Experiments are also in progress regarding the most suitable manure and texture of soil, etc., for mulberry cultivation.

Regarding the irrigation of mulberry, I have found that it derives no good from it, the plants producing pale-coloured sickly leaves.

M. L. CLEGHORN.

ANNUAL REPORT ON THE WORKING OF THE SERICULTURAL SCHOOL, RAJSHAHI, FOR THE YEAR ENDING 30TH JUNE 1915.

THE school was made over to Government in January 1907. Since then it is being managed by a Managing Committee under the Director of Agriculture, Bengal. The school teaches practical methods of—

(*a*) mulberry cultivation;

(*b*) microscopic seed selection;

(*c*) detention and prevention of silk-worm diseases:

(*d*) rearing of silk-worms.

The school is in possession of 22 bighas of land at Kadirganj, within a mile of the school. Of this 15 bighas are under mulberry cultivation against 8 bighas of the previous year.

The cocoons grown in the school are gaining popularity among the Bashnis. They take cocoons from the school for their seeds.

Four crops of cocoons were raised in the school in the year under report, viz., in July and September 1914; in January and April 1915 amounting to 353 kahans 8 pons of cocoons, of which 9 kahans 8 pons were kept for microscopic examination in class and the rest was sold as seeds to the Bashnis of different Joars of this as well as Malda district. The total receipt was Rs. 389-10 against Rs. 427 of the previous year. The decrease is due to the mulberry cuttings for planting new lands.

Teaching Staff.—There is a Head Master who teaches sericulture and, with the help of a rearer, practical rearing is taught. The Head Master had

from time to time visited the model rearing houses of passed students and gave instruction to the village Bashnis regarding silk-worm rearing.

Model Nurseries.—Have been started by the *ex*-students of the school and arrangements have been made to inspect the nurseries and to see how they make profit by rearing silk worms.

Quarterly reports of the model nurseries are called for and received. They show that the nurseries are doing well.

Students.—There were 11 boys in the beginning of the year. Ten appeared at the final and all passed. They would receive their rewards in the next winter. Four boys of the previous year received second instalment of their rewards and a microscope. There were 12 boys on the roll on the 30th June, 7 of whom are Muhammadans and 5 Hindus. Six of these belong to this district. The students cultivate a plot of ground, each measuring 1 cottah.

Microscopes.—There were 21 microscopes, of which four were given in the year; 17 are in stock.

The half-yearly examination is just over, the result of which has not yet been declared by the Committee.

Discipline.—No case of breach of discipline has come to the notice of the school authorities in the year under report—

Receipts.	Rs.	A.	Expenditure.	Rs.
Sale-proceeds of cocoons	389	10	Establishment ...	856
Government ...	5,842	6	Stipend ...	1,017
			Appliances ...	100
Total ...	6,232	0	Books and maps ...	20
			Repairing, etc. ...	766
			Rewards ...	1,000
			Taxes ...	123
			Contingencies ...	2,350
			Total ...	6,232

The school was visited by the Director of Public Instruction on 8th December 1914, Mr. M. M. Chakravarti on 27th December 1914, Director of Agriculture, Bengal on 30th December 1914 and 8th May 1915, Mr. M. M. Chakravarti on 26th June 1915.

There were three meetings of the Managing Committee during the year under report.

K. BANERJI.

Secretary, Sericultural School, Rajshahi.

No. 41, dated Malda, the 11th July 1914.

FROM—N. NARAYANS PILLAI, Weaving Master of Bengal.

TO—The Director of Agriculture, Bengal, Writers' Buildings, Calcutta.

WITH reference to your memorandum No. 3758-60, dated the 4th May 1915, I have the honour to submit the following annual report regarding the work done by me from 1st July 1914 to 30th June 1915.

During the year ending with 30th June 1915 I availed myself of leave for 22 days and I had been out on tour for 296 days to attend to works as detailed below:—

I visited Alipore, Dakshinpara, Uttarpara, Magikanta, Nurpur, Nazirpur, Pukuria, Bamankanta, Sonakola, Amrithi and Janti near Banga in the district of Faridpur in connection with the organization of weavers' co-operative societies and organized the following six societies at fixed centres—Paschimsadardhi, Nurpur, Magikanta, Amirthi, Janti and Alipore with the approval and sanction of the Registrar of Co-operative Credit Societies. It was arranged that the working capital for the above said registered societies should be supplied from the Central Bank of Faridpur. Members were admitted into the above societies, and the office-bearers were also appointed in the first general meeting that was convened. Arrangements were made for the supply of raw-material (yarn, etc.) soon as the funds were advanced to those societies. Besides these, demonstrations of the application of improved accessories in country flyshuttle looms were conducted in order to

induce the weavers the advantages they would derive if they joined as members of the weavers' society. The objects of the above society are for the present to supply at a less cost genuine raw materials quite similar to their samples and to advantageously dispose of the fabrics manufactured by the members. I also organized a weavers' society at Gossainhat keeping its head-quarters at Tangra-Bazar and combining with it members from Haturia and Tangra-Bazar. Papers and requisitions were forwarded to the Registrar for registration of the society. At Gopalganj in Faridpur the Subdivisional Inspector inspected the working of weavers who had attended my weaving demonstrations, and I consulted with them if they could form a weavers' society. They acceded to my proposals, convened a meeting and forwarded an application to the Registrar for registration.

I visited Pingna in the district of Mymensingh and conducted weaving demonstrations on improved flyshuttle looms and warping apparatus to the benefit of weavers in and around that place. I visited also Tangail, as desired by the Registrar of Co-operative Societies and the Secretary to the Tangail Rural Bank to organize a weavers' society at Bajitpur. A meeting was held to that effect; but, the only objection the weavers raised was that they were not able to pay more than 7½ per cent. interest on loans advanced by the Rural Bank. The matters were reported to the Registrar, who anyhow registered the society to give it a start. As desired by the Registrar, I visited Nalsonda, Sharuncha, and Bella in order to organize similar societies amongst the weavers.

I visited English Bazar, Shujapur, Sibgunge and Kaliachuck in the district of Malda in connection with demonstration and introduction of the improved reeling machine amongst the silk reelers. At Shujapur—the prominent silk-reeling centre—the reelers very much appreciated the working of my improved machine, as they found it to be really useful and profitable, and in order to give wide publicity to those machines six similar ones were made for distribution among selected professional reelers and arrangements were also made to realize their cost by monthly instalments. All the six machines were readily taken up by them as proposed. It was also suggested to follow similar course while distributing the machines to English Bazar and Kaliachuck reelers. At English Bazar a meeting was held at the house of the Vice-Chairman of Malda District Board to organize a reelers' co-operative society so as to enable the members of the society to purchase such improved reeling machines and also to get advances from the society in order to gather cocoons advantageously from hâts. On forwarding the proposals to the Registrar, the interest of 6 per cent. demanded by the members on the working capital being abnormally low, he was unwilling to register such a society. Further, the funds of the Rural Bank of Malda having been very short then, the proposals were put off for some other time. I visited Sibganj in Malda district and inspected the working of silk weavers; and on their request, a new type of automatic dobby is being prepared. This apparatus is to automatically work out floral designs on the borders of silk fibres manufactured there and thereby to greatly facilitate their labour and cost of manufacture.

I visited Cox's Bazar in the district of Chittagong in order to inspect the local weaving school that was started there for the use of Mogh weavers and also to organize, as desired by the Subdivisional Officer and other influential gentlemen of the locality, a weavers' society on limited liability and on joint-stock system. The society was therefore organized on a working capital of Rs. 5,000, of which Rs. 1,500 to be had from the District Board and the remaining sum to be collected on account of sale of shares valuing Rs. 100 per each share. It was also proposed that a regular supply of reeled silk from Murshidabad or Malda should be arranged for. The Moghs weave only coloured silk lungees and export them to Rangoon.

I visited Berhampur, Jankipur and Khagra in the district of Murshidabad. At Berhampur the working of the improved reeling machine was demonstrated to Pattergata reelers. Six improved reeling machines were made locally for the purpose of distributing them to Malda reelers. I inspected the working of Jankipore reelers and wool weavers giving the former suggestions how the improvements on the improved reeling machine could be applied on the existing reeling machines; and to the latter, how to wash wool with germicidal solutions and vapours such as copper sulphate, sulphur fumes, carbon bisulphide and mercuric chloride and also by absolute removal of yolk from the shorn wool or by immersing the prepared fabric in soft soap solution. The preparation of raw wool by the wool

weavers at Jankipore is so very crude and antiquated that fabrics manufactured out of such wool are very soon affected by germs and insects, and the above process was suggested to rectify the longstanding defect.

I visited Gangarampur, Kuchiamora, Tatiband, Tarabaria and Kawpara in the district of Pabna in connection with the organization of weavers' co-operative societies as suggested by the Registrar. The societies were organized at Gangarampur, Kuchiamora, and Tarabaria and the papers forwarded to the Registrar for their registration. It was also proposed that they should be financed by the Central Bank of Pabna at 9¾ per cent. rate of interest on loans. I visited the working of weavers at Dogachi (Pabna district) and arranged to supply them improved steel reeds that would be suitable for this work. I visited Bharenga, as desired by the Registrar of Co-operative Societies, and reconstituted the old Bharenga Weavers' Society, changing its head-quarters to Nuthen Bharenga and admitting more members from the surrounding villages of Edarakpore, Bagchor and Pengna. The matter was reported to the Registrar and he accorded his approval and sanction for doing so

I visited Ramjibanpur, Ghatal, and Daspur in the district of Midnapur and inspected the working of weavers of the respective areas. As the weavers there stood in great need of fast coloured yarns and other weaving materials alone at a cheaper rate to keep them working on, I made arrangements with a Calcutta firm to supply them.

I visited Comilla, Manamati, Ghoshnagar and Jafrabad in the district of Tippera as desired by the Collector of Tippera and the manager of Bhukailash Raj Estate. The Collector wanted me to enquire into the reason why Manamati *charkanas* (cotton checks) did not now-a-days find a ready market. On a close enquiry, I came to know that first, fast coloured yarns were not readily available in the market as the weavers used to get two years ago. Secondly, even while genuine articles were made and brought to market for sale, the local *mahajans* intentionally depreciated their value to purchase them at a cheaper rate. And when fabrics were manufactured with fugitive coloured yarns they were looked down by the purchasers also. Thirdly, the weavers being too poor to adopt improved automatic flyshuttle looms, etc., they could not cope with commercial mill competition. Fourthly, they invariably were indebted to *mahajans* who consequently control their works and the market outside. In order to improve their condition it was suggested to organize a weavers' society, and a public meeting was convened at Manamati to its effect. It was proposed in the meeting to keep Ghoshnagar as the centre and to admit members from Manamati and the surrounding nearest villages. The proposals and requisitions were forwarded to the Registrar for his approval and sanction. I visited Jafrabad and found that weavers had adhered to my improvements that were applied in their flyshuttle looms.

I visited Chandshi, Dhuriail, Barisal and Bandoba in the district of Bakarganj and inspected the working of weavers of the abovementioned areas, where I conducted weaving demonstrations on a former occasion. The weavers there being cultivators as well and on account of loss they sustained owing to the fall of jute market, they expressed their inability to spend any fresh sum on improved looms or their accessories which they had required from me sometime previous.

I visited Serampore in the district of Hooghly in connection with the organization and working of Serampore Weavers' Co-operative Society.

I visited Nawabpore and Tatibazar in the district town of Dacca and demonstrated improved warping apparatus and the automatic flyshuttle loom for the use of Nawabpore weavers. Repaired and brought to working state one automatic flyshuttle loom that belonged to Ramchandra Basak of Tatibazar. To improve the condition of Dacca weavers, it was proposed and consulted with the local weavers, through the influence of Babu Rajendra Nath Basak and Rai Saheb P. N. Chaudhuri, honorary organizer of co-operative societies, to organize a weavers' co-operative society on unlimited liability and to raise the working capital by means of selling shares. It was also proposed and concluded that if Government help was mot extended as shown to other weavers' societies, the proposed society should be started up at least on a joint-stock system. The above proposals were forwarded to the Registrar for his suggestions and approval.

N. N. PILLAI,

Weaving Master.

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